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Reorganisation of Nationalised Road Haulage

THE main consequence for British Railways of the reorganisation of State-owned road haulage, as a result of the Transport Act, 1953, will be a setback in the development of co-ordination of rail and road long-distance road services on which a start had been made before the present Government announced its intention of disposing of a large part of the road haulage assets of the British Transport Commission. The announcement earlier this week by the Commission of the future organisation of its road haulage fleet and of its plans to avoid undue disturbance of services is given elsewhere in this issue. The long-distance fleet of British Road Services will be drastically cut from some 20,000 to 2,350, if all the 17,000 vehicles for sale are disposed of. This will weaken the position as to co-ordination of long-distance rail and road consignments, though one obstacle to this had been the attitude of some railwaymen who feared redundancy. The conditions now are set for increased competition between railway and road. The Commission on the other hand will be in a position to compete strongly on its own account in the road haulage field, whatever the extent of sales. Of some 36,000 vehicles of British Road Services, only some 3,500 may be retained

under the Act, which in terms of total unladen weight is understood to give the increase of one-fifth over that of the railway-owned ancillary undertakings taken over at nationalisation, the object of the increase being to cater for the growth of road traffic since 1948. Whether the increase is sufficient is problematical. As railway cartage and delivery services are not affected, the Commission may not be so much handicapped in providing the necessary services ancillary to those of its railways. About one-half of the 2,000 specialised vehicles of British Road Services' vehicles may be retained under the Act, and is to be operated in the name of Pickfords. A noteworthy feature of the Commission's plans is the intention that, to fulfil its statutory duty to minimise inconvenience to transport users caused by the disposals, the Commission, if a user requires it, shall accept his orders as before and arrange to carry his traffic.

Brakes and Signals Export Group

IN 1940 export groups were formed at the behest of the Board of Trade by a large number of industries. Many of these have since ceased to play any practical part or even, indeed, to hold meetings of their members. The Railway Brakes & Signals Industrial & Export Group, on the other hand, which represents every manufacturer of railway brakes and signals in this country, has functioned usefully since its creation, and has held regular and well-attended meetings, to deal with any problem associated with home or overseas business in which the industry is interested. It has also kept in regular touch and collaborated with the relevant Government departments. On Friday last the Group, after a meeting in the afternoon, held its annual dinner at the Great Northern Hotel, Kings Cross. Mr. F. L. Castle, of the Siemens & General Electric Railway Signal Co. Ltd., who is Chairman of the Group, presided. Eleven companies were represented, and 21 members attended the dinner. A list of those who attended, and the companies they represented, is given on page 106.

Increased Steel Production

BRITISH steel production last year rose to the new high level of 17,609,000 ingot tons compared with 16,418,000 tons in 1952, and it is still rising. This fine result has been achieved by an increase in production, and blast-furnace capacity, and better supplies of iron ore from home and overseas. A notable increase in capacity resulted from the completion of new plant by Dorman, Long & Co. Ltd. and John Summers & Co. Ltd. The rise in production has been much more than sufficient to cover the increase in home and export requirements. There is still an excess of temporary demand for plates over the estimated long-term demand, caused mainly by railway wagon building and shipbuilding. The strong demand for steel in general is not expected to weaken, but, if it should, the decline could be met by a reduction in the tonnage of steel ingots imported greater than at present envisaged. More blast furnace and steel furnace capacity will come into production this year and contracts have been signed for the necessary supplies of overseas ore and arrangements made to increase home output.

Loan Requirements for East African Developments

WHEN introducing estimates of revenue and expenditure for the coming year, Mr. A. F. Kirby, General Manager, East African Railways & Harbours, said that to fulfil its true purpose as a major factor in the development of East Africa, the E.A.R. Administration should provide between 5 and 10 per cent of its revenue annually for capital improvement. Freight rates went up by 20 per cent on January 1, as commented on in our December 18, 1953, issue, when we referred to the great disparity between present rates and costs. Mr. Kirby believes that further rate increases could be absorbed without upsetting East African economy and that some export industries could well pay double the present charges—even then they would be making no more than a fair contribution to E.A.R.

finances. The need of the East African Railways to secure more revenue is real, though, of course, the scale of the works needed to keep abreast of the rapid development of the three territories is far beyond the capacity of the railways' own resources to finance, and large sums must be borrowed. In the last five years, loans totalling almost £60,000,000 have been sanctioned for railway and port improvements. The present programme will require raising loans up to at least £10,000,000 this year, and one may be available from the International Bank for Reconstruction & Development.

Overseas Railway Traffics

ANTOFAGASTA (Chili) & Bolivia aggregate receipts for the period from January 1 to December 25, 1953, were £4,854,359, against £4,954,614 for the preceding twelve months. A main factor affecting comparison is the conversion rate of the boliviano, which was changed on May 8, 1953, from 169.61 to the £ to 538.14; the Chilean peso rate remained at some 350-370. Peruvian Corporation receipts for December were soles 10,138,000 and bolivianos 43,652,000, representing increases of 872,000 and 22,110,000 over the figures for December, 1952. The aggregates for the six months to December, 1953, were soles 61,213,000 and bolivianos 269,375,000, which also gives increases over the corresponding six months of the previous year, of soles 5,688,000 and bolivianos 165,543,000. The Peruvian average remittance rate for December was soles 49.95 to the £, against 42.43 in December, 1952. The Bolivian official remittance rate was bolivianos 537.08 for restricted amounts, against 169.61 in December 1952. Central Railway traffic was interrupted for three days as a result of an accident on the Central Railway on December 25.

Vision in Transport Planning

A CALL to all engaged in transport to "raise their sights" and plan for the future with boldness and vision was made by Mr. John Elliot, President of the Institute of Transport and Chairman of the London Transport Executive, in a speech to the North Western Section of the Institute at Manchester earlier this week, as briefly recorded on another page. Whilst he admitted the advantages of economy and efficiency to be won from the standardisation and unification characteristic of the present trend towards larger operating units, he stressed the dangers, including timid thinking at the top and too much faith in committees. The vision, energy, courage, and competence of gifted pioneers—some of whose names he cited as examples to young men entering the transport industry—and not committee work, had made possible the achievements of transport, though after the initial inspiration there is scope for committees and men of goodwill to bring ideas to fruition. Among the steps to improve transport in this country urged by Mr. Elliot are electrification and dieselisation of a large part of the railway system; development of the lighter train and road vehicle; and the linking of rail and road services to give far quicker and easier transits for freight.

Harder Work with Higher Pay

IN support of the 48-hr. working week for railwaymen and other changes in conditions of service to enable the British Transport Commission to pay higher wages without having to increase railway charges or seek a Government subsidy, on which we commented in our issue of January 8, a further letter from Major Malcolm Speir has appeared in *The Glasgow Herald*. He states that rank and file railwaymen with whom he has discussed his proposals have pointed out that with the extraordinary basic pay they would receive they would gain in overtime pay as well. He then goes on to suggest that after a year or two's experience with the hours and conditions proposed, if the Commission found itself able to do so after meeting its obligations as to interest and providing for depreciation, any surplus should take the form of increased wages or better terms for pension funds; this would be a form of profit-

sharing the success of which would depend on giving a little extra time to the ordinary working day, being then only a 48-hr. week.

Secret Ballot

THIS proposal, Major Speir says, should be put by the executives of the railway trades unions to all their members in secret ballot, instead of the unions executives uttering threats to strike without consulting their whole membership. He suggests further that though the right to strike must be maintained, strikes should be made illegal without a secret ballot being taken. The recent series of wage demands by the railway unions, he states, is simply getting higher wages at the expense of the public; he is referring presumably to the increases in railway charges resulting from the awards of wage increases, and not to any loss borne by the public on operation of the railways, for such has not taken place. "The decent way" of getting more wages and raising the standard of living suggested by him is "service to the general public by working a little harder." These suggestions, which are made with sympathy for the lower-grade railwaymen's case by a railwayman with as much experience both as subordinate and as a senior officer as Major Speir, should receive the consideration they deserve.

British Railways Heavy Freight Engines

THE class "9" 2-10-0 heavy freight engines, of which the first batch of 20, built at Crewe, will be placed in service shortly, have a fairly general route availability. Certain design features are common to standard engines and include the pony truck and the cab which follows the same general layout as in standard engines. In the present design, however, fall-plates have been re-introduced. The first batch of tenders will be of standard pattern and will have a narrow coal bunker, and as some Regions require high water capacity in relation to coal, particularly for routes with few or no water troughs, a new design of tender has been introduced on the second batch of engines in which the coal bunker extends to the full width of the water tank. The boiler is similar in many respects to the wide firebox types fitted to classes "6" and "7" 4-6-2 engines, but, because of the need for placing the firebox above the trailing coupled wheels, it has not been possible to use an existing boiler. However, as far as possible, the design incorporates pressings made from the same press blocks as for the class "6" locomotive, while the front tubeplate uses the same pressings as that used for the class "7" locomotive. The question of adopting the new locomotive as a standard type will depend entirely on its performance in service.

Progress of "Operation Phoenix"

"OPERATION PHOENIX," the Victorian Railways modernisation programme, which because of lack of loan money was compelled to proceed uncertainly in the last financial year, will be able to progress rather faster this year in view of an allocation from loan funds of £7,800,000 for urgent railway needs. The largest allotment is £659,000 for further work on electrifying the Gippsland line. The first section, between Melbourne and Warragul, 61 miles, is expected to be ready in April. Doubling of the line will also be accelerated, £300,000 having been allocated; work will be carried out mainly between Dandenong and Officer. Expansion of Dynon Goods Terminal facilities to relieve congestion in the Melbourne Yard will absorb £248,000, and the Department's contribution towards the De Graves Street subway, at the centre entrance to Flinders Street Station, including an underground booking office, is £60,000. Covering in open areas at North Melbourne, Ballarat and Bendigo Workshops to improve conditions for maintenance staff will cost about £90,000 and up to £4,000 will be spent on improved meal and locker rooms, and other amenities at workshops and depots. The erection of 180 more pre-cut houses will allow staff to be built up to authorised strength and make possible promotions which have been delayed by shortage of accommodation.

Locomotives for Gippsland Electrification

ELECTRIFICATION of the Gippsland line in Victoria will give Australia its first electrically-operated main line. The scheme, with the associated doubling and re-grading, has been devised to ease the working of mineral trains in view of the development of the brown coal industry in the south-east of the State. The English Electric Co. Ltd. is supplying 25, 2,400 h.p., Co-Co mixed-traffic locomotives, equipped with rheostatic braking which will be a great asset in handling heavy trains over this steeply graded route, as indicated in our description in this issue. Other notable features include the combination of under-frame and superstructure to form one unit, making for robustness and a smooth finish, and the wide range of power notches, which will meet all operating requirements. Each of the six motors, which are axle-hung and nose-suspended, has a weak-field rating of 400 h.p. The drive is through resilient spur gears mounted on the axles. Substantial reductions in running times are contemplated when the whole electrification is finished—up to 120 min. on the Morwell-Melbourne journey of 89 miles.

The Value of Tourists

FOR several years Britain has earned more dollars from American visitors than from any one of her primary exports industries. Although final figures are not yet available on the dollar earnings for 1953 it is expected that tourist traffic will again prove to have been Britain's primary dollar-earner. Of the provisional estimate of £125,000,000 for total tourist earnings for 1953, £47 million was in dollars from North American visitors. This figure is made up of £36.5 million from United States visitors and £10.5 million from Canadian. This compares with £41.5 million in 1952 and is an increase of 13 per cent on that figure. The total tourist earnings estimate for 1953 shows an increase of 9 per cent on the figures for 1952. It would appear that the Coronation was not the sole reason for the increased receipts quoted—the increase of 11 per cent on 1952 tourist receipts may be compared with the increase of 66 per cent of figures for 1953 as against the Coronation year of 1937. In 1947 total tourist earnings were only £33 million of which £12 million was in dollars. Far from a drop in revenue in 1954, advance bookings would appear to indicate a slight rise. It is, in any event, expected that traffic can be held at much the same level as last year.

Interesting information provided by the British Travel & Holidays Association recently derived from quotations from typical remarks made by visitors to this country from abroad. It is gratifying to observe that, on the whole, adverse criticism confines itself to what may be described as minor irritations to the enjoyment of the visitor: warm praise was expressed for the friendliness and helpfulness of the British as a whole; customs and police officials came in for especial commendation, while bus and underground services appear to be considered "the best in the world." Recurrent through these words of praise, however, appears dissatisfaction with the general level of cleanliness and hygiene—hotels, restaurants and shops came in for their share of criticism in this respect, but a great emphasis was placed on the poor toilet facilities on the railways, the equally poor quality of the toilet paper available, the low standard of cleanliness, particularly with regard to upholstery throughout trains generally, the lack of an adequate supply of water for both drinking and washing on trains, and the wish for separate and cleaner toilets for men and women.

Overseas visitors' observations of this kind will not come as a surprise to us, who are only too uncomfortably aware of the reasons for the fact and reasons for the lowering of our standards in these respects in recent times. It can with justice be argued that points such as these do not have a markedly deleterious effect on the incoming tourist trade to these islands: it will be said that a certain lack of cleanliness will not deter visitors who seek the many attractions which Great Britain has to offer by reason of its age and traditions. In connection with other pinpricks, however,

a certain general disadvantage may well be felt by the visitor—complaints include lack of sufficient first-class hotels, difficulties with the monetary system, with which must be allied the tendency of many taxi-drivers to take advantage of the inexperienced traveller, inadequate indication of destinations on roads, cold bedrooms, and the usual dissatisfaction regarding the licensing laws. A suggestion of railway interest was that trains running late should be advertised on a board with the scheduled starting times in addition to the time they will actually leave. An excellent aid to currency, capacity, and linear problems designed by the British Travel & Holidays Association for the use of the overseas visitor, is described on page 110.

Although 1953, the year of the Coronation, must be regarded as exceptional, the significance of published figures cannot be ignored. The tourist trade of these islands has earned more during the last few years than either Switzerland or France, countries of long-standing specialisation in the industry. The present emphasis on good value at a relatively low price and the attempt to capture the not-so-wealthy middle-class travelling market of each country is succeeding to a very large extent. Constant attention to details may well result in a big increase of visitors to these shores, with consequent profit and international good will.

Amenities for the Indian Passenger

THE efforts by the Government of India Railway Board and the managements of the six railways in the Republic of India to increase amenities for the passenger, and more particularly the third class passenger, were outlined by the Minister for Railways & Transport, Mr. Lal Bahadur Shastri, in his recent address to the first meeting of the National Railway Users' Consultative Council in New Delhi. Special attention is being paid to providing fans in third class stock, and within three years all third class coaches are expected to be fitted with fans. This, he explains, could have been achieved in a shorter period if the number of coaches were not so inadequate and it had been possible to withdraw them in sufficient numbers for the fitting of fans. The magnitude of the achievement can be gauged from the number of coaches, the great majority third class, on the six systems—some 14,000 in all. All the new third class coaches being manufactured in India or imported from abroad have fans besides other amenities.

The abolition of ordinary first class, now withdrawn from all but a few main-line trains, has increased the necessity for improving standards of second class accommodation particularly in stopping main-line and secondary and branch-line trains. The Railway Board is examining what is a difficult problem because, as with third class stock, the number of second class coaches allows only of limited withdrawals for reconditioning, including provision of more comfortable seats and improved lighting and lavatory arrangements. Much first class accommodation, however, is now available to second class passengers, which somewhat eases the situation, and new second class stock should give no cause for criticism on any point affecting passengers' comfort. The number of air-conditioned coaches available to first class passengers at extra charge is being increased; most of the principal mail trains now include these vehicles, provision of which assists the railways in competing with the air services for long-distance travel. Sleeping cars have been introduced in certain trains. Orders for 3,800 passenger vehicles of all classes have been placed, Mr. Shastri states and acquisition of an additional 2,000 is being planned. Almost all the stock is being arranged through production in India: only the multiple-unit electric stock and a small proportion of the other coaching stock, it is stated, is being obtained from other countries.

Although the speed of passenger trains has not changed in recent years, timings for the longer journeys being slightly longer than prewar, there are now a number of *janata* ("people's") third class only expresses, and the practice of admitting third class passengers to all trains has been extended. Only one train in the whole of India, the "Deccan Queen" between Bombay and Poona, does not include third class.

Colonel Wilson's Annual Report

AS the year 1952 wore on with remarkable freedom from train accident casualties hopes were entertained that it would be one of the best in that respect and come near to the clear record of 1949. These hopes were destroyed by the disaster at Harrow & Wealdstone on October 8, the second worst in the history of railways in the United Kingdom, with its 112 deaths. "But for the grave consequences of this single failure of the human element," says Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, in his annual report, "only one passenger would have lost his life in an accident to a train in 1952."

In 1952 there was actually a decline in the number of "train" accidents reported, although traffic was operated "under very trying conditions during an unusually long spell of dense and widespread fog in the late autumn." It is to be noted that "few of the accidents of any consequence could be attributed, directly or indirectly, to inadequate or worn out equipment," and the report describes the year generally as "one of steady progress in operating efficiency and modernisation of equipment." Undue emphasis should not be laid on casualty figures, as a chance circumstance often suffices to affect them considerably. At Harrow, for example, the stand-

responsible for 190 or 15 per cent, including 54 collisions with road vehicles at crossings from which ten deaths resulted. Nine railway servants were killed in train accidents in 1952.

Total route mileage open to traffic was reduced during the year by 81 miles to 19,499 and electrified track mileage increased by 71 miles to 2,933, with the commencement of electric freight haulage between Wath and Dunford Bridge. Total staff employed at the end of the year was 624,510, an increase of 2,047 since the end of 1951, and there was again "an appreciable improvement in the recruitment of men for the operating and track and signal maintenance staffs."

Passenger and freight traffics declined by 3 per cent and 2.2 per cent respectively, but the reduction in passenger miles was only one per cent and total train miles on the main lines and London Transport railways remained unchanged at 376,000,000 and 35,000,000 respectively. Their total number of passenger journeys came to 1,574,000,000, giving an estimated passenger mileage of 24,048,000,000.

TRAIN ACCIDENTS

Formal inquiries were held into 14 train accidents. At Bury on January 19 an intending passenger was killed and 174 injured when about 200 were thrown on the track from the bottom booms and floor of a covered wooden

	Collisions	Derailments	Running into obstructions	Fires in train	Miscellaneous	Total
1. Failure of train crew (including guard) :—						
(a) Passing signals at danger	29	10	27	—	—	66
(b) Other irregularities or want of care	119	30	27	—	5	181
2. Failure of signalmen :—						
(a) Irregular block working	13	—	1	—	—	14
(b) Other irregularities or want of care	12	16	7	—	—	35
3. Failure of other operating staff	62	7	78	1	17	165
4. Failure of train crews and/or signalmen and/or other staff	53	17	21	—	3	94
5. Faulty loading	2	7	1	—	—	10
6. Technical defects :—						
(a) Engines	7	13	1	1	2	24
(b) Vehicles :—						
i. Drawgear	11	16	—	—	—	27
ii. Other	8	34	—	14	2	58
(c) Track or signalling apparatus	1	45	7	—	—	53
(d) Defective structures (other)	—	1	1	—	2	4
7. Other causes :—						
(a) Snow, landslides, floods	—	4	3	—	—	7
(b) Animals on the line	—	—	95	—	—	95
(c) Misconduct of the public	83	1	66	17	23	190
(d) Miscellaneous	16	9	42	137	16	220
Total	416	210	377	170	70	1,243

ing train was unusually full, while the results of the original collision, serious as they must have been, were greatly aggravated by the presence on the adjoining line of an express which could not be prevented from running at speed into the wreckage. The fact that the lines were between platforms made the situation still worse.

Although the number of train accidents fell from 1,280 to 1,243—their primary causes are analysed in the table above—there was a heavy increase in the casualties from them, which totalled 1,435, compared with 1,006 in 1951; the total deaths were 133, all but 21 of which occurred at Harrow. Of that remainder only three were passengers. One was an intending passenger who lost his life in the collapse of a footbridge; one was a child who fell out of a passenger brake van when its door opened and struck a passing train; and the third was killed in a collision arising out of loss of brake power. Of the 18 others, 13 were occupants of vehicles at level crossings. Human failure on the part of operating staff is shown in the analysis to have accounted for 45.5 per cent of the train accidents, train crews being responsible for 148 collisions and 40 derailments, against 158 and 36 in 1951, while failures of signalmen accounted for 25 and 16, compared with 30 and 15. Technical defects of one kind and another, in many of which human failure had some part, were responsible for 166 accidents, including 27 collisions and 109 derailments, 13.3 per cent of the total. In 1951, the figure was 193, or 15.1 per cent. Under "other causes" 512 accidents are shown, 41.2 per cent of the total and 16 fewer than in 1951; misconduct of the public was

girdler footbridge falling out; corrosion, unnoticed over many years, had weakened some wrought-iron straps so that they no longer transmitted any load. The whole system of bridge examination has been reviewed and thoroughly reorganised where necessary, while specially trained bridge examiners have been appointed and a complete new code of practice issued.

At Clydebank on January 21, a passenger train passed a home signal in a dense fog and ran into another standing in the station, injuring 20. The signalman had contravened the block regulations, pleading that he was confused by certain wording therein. The driver of the second train approached the home signal slowly and observed it to be at danger, but passed it without stopping, assuming it to be defective because the fireman had seen a fogman's green light on the other side of the train. The importance of clear wording for regulations was emphasised by this case, though there was no excuse for the signalman's failure.

At Blea Moor on April 18 a fallen tender brake rod on the leading engine of an express, bouncing over the ballast, struck a stretcher bar, forced some facing points open and derailed the train. A split pin had sheared; it was evident that it could not have been fitted properly. The condition of the corresponding one on the other side was far from good. It was considered that insufficient attention had been paid to maintenance of the engine brake gear for some time, and the need for conscientious supervision was emphasised. A somewhat similar failure occurred at Crewkerne on October 25; unsatisfactory design was primarily the cause of the split pin shearing.

Ineffective examination and accumulation of dirt on the undergear may have contributed. Whilst travelling at about 50 m.p.h. between Linlithgow and Philpstoun on May 25, a train was derailed without personal injuries at an unsafe partly dismantled crossing which a sub-ganger had not re-assembled in time. He had been foolhardy in undertaking the work single-handed and made no arrangements for its protection in accordance with the rules.

At Nottingham Victoria on June 30 a double-headed train booked to stop overran a signal and collided with a shunting movement which the signalman ought not to have allowed, causing some injuries. The primary cause, however, was misjudgment on the part of the driver of the leading engine, travelling faster than was authorised, and the steam brake valve of the second engine probably had failed when vacuum was reduced. This was attributed to defective sealing by a cup leather washer on a piston and there may have been some other leaks. A new type of washer was put under test. The incidence of such failures with the standard steam brake valve has been negligible. At the same station on December 4 a passenger train running under clear signals struck a light engine which had come from a bay line. The shunter had failed to have a clear understanding with the engine driver about the movement.

A serious accident which, most unusually, resulted in a charge of manslaughter being sustained against a gatekeeper, occurred at the Riccall crossing on July 16. After clearing his signals for trains in both directions, the gatekeeper, hearing the horn of a motorcar, restored them and opened the gates when a freight train passed, momentarily forgetting the express approaching in the opposite direction. Suddenly realising his blunder, he tried to call the car across quickly, but his signs were misunderstood and it stopped on the line, was immediately struck and its two occupants killed. The general equipment was good and the accident due solely to the gatekeeper's failure. The driver of the express had no chance of doing anything when he sighted the home signal unexpectedly against him.

At Shawford, on July 20, a driver overran a signal, having misread the one for the adjoining line, and ran into a sand drag. His engine was overturned and a coach derailed. The signals were well sited and there should have been no confusion, but the driver had worked over the route only twice in 24 weeks, and although that was not thought to have contributed to his failure, the engine link working was altered to give drivers more frequent experience of the line. Similar action is also being taken generally wherever necessary and practicable.

At Eterby Junction, Carlisle, on August 16, in clear weather at night, a light engine overran a starting signal and collided with a passenger train standing ahead. The Buckeye couplings caused the shock to be distributed in such a way that there was no serious damage to any vehicle. The driver had taken no pains to observe the signal, which he could have seen by crossing the footplate, and received no assistance from his fireman. He admitted to forgetting about it and had a record of carelessness throughout his career in observing signals. It was considered that inadequate steps had been taken to bring this home to him and the case was thoroughly reviewed, as a matter of principle, to ensure such laxity being dealt with at sufficiently high level of authority.

On August 18, between Dalmarnock and Bridgeton Cross, Glasgow, a passenger train nearly stopped in a tunnel for want of steam and the following train was allowed to enter it by the signalman in advance, who was not paying attention to his duty and committed the gross irregularity of tampering with the emergency release of the lock-and-block to enable him to give "line clear" a second time. There was no excuse for this "plain wrong doing." Everywhere where this particular system is in use the apparatus was altered to make a repetition impossible.

The accident at Harrow & Wealdstone on October 8 arose from the driver of an express failing to observe a colour-light distant and semaphore outer and inner home signals, all against him, and colliding at high speed with a heavily-loaded passenger train. The derailed engine

fouled the adjoining line and another express ran at speed into the wreckage. Its two engines, unable to turn aside, because of the platform, jumped up and ran across it, overturning on the nearby electric lines. The destruction of rolling stock was altogether exceptional. No block working or other signalling irregularity was committed and the rules for working in clear and foggy weather were considered adequate. The report on the case pointed out that the way to guard against this type of human failure lies in the provision of A.T.C. of the warning type, the case for which rests on the fact that in the 41 years 1912-52 ten per cent of the accidents inquired into, and 28 per cent of the resulting fatalities, might have been prevented thereby. That report also gave the history of the development of A.T.C. in Great Britain to the present day and of the developments since 1948, when the principle was accepted that warning control should be widely extended.

In the present annual report Colonel Wilson remarks: "I should make it clear that a firm decision has been taken by the British Transport Commission to extend warning control progressively to all main routes of the country at heavy cost; I am also able to say that Government authority will be given for the necessary capital expenditure. It is not, however, possible to make an immediate start on a comprehensive programme of extension for the one and only reason that the reliability of the modern non-contact system which has been developed by British Railways is not yet complete. As is well known, large-scale trials of the equipment are in hand between Barnet and Huntingdon on the East Coast main line. The Inspecting Officers of Railways are being kept fully informed of their progress; it is clear that no efforts are being spared to achieve a complete solution of the technical problem, so that practical effect can be given to the Commission's intentions at the earliest possible date."

A feature of the Harrow accident stressed in the report was "the ability of the different types of rolling stock to resist destructive forces . . . it was noted that two coaches which were involved in the wreck of the down express were of the new British Railways standard all-steel welded type with strengthened underframes, and that both kept their form as integral structures. Their Buckeye couplings, however, could not be used, as the rest of the train was screw coupled. In a collision of this description casualties would have been heavy whatever the type of rolling stock construction, but it seemed that the wreckage might have been less compact and the killed and injured fewer if more of the rolling stock had been of the latest all-steel type and rigidly coupled."

At Guildford on November 8 a two-coach electric train got out of control on the approach gradient and, passing signals at danger, collided with a light engine. The motorman and one passenger were killed. The brake had failed from gradual loss of air after the compressor failed, following the blowing of a fuse, after which the train had run 22 miles. The indication of the progressive drop of pressure on the gauges had not been observed by the motorman, and although they should give ample warning of any such failure an additional safety device was considered desirable on two-coach units having one compressor. It was decided to fit them, therefore, with the governors, standard on new stock, to prevent application of traction power without sufficient pressure in the brake system. They are to be fitted also on other electrified lines.

On December 22, near Wheatsheaf Junction, the firebox on a freight engine collapsed, fortunately with no fatal result. There was only one water gauge, supplemented by test cocks, the practice on the former G.W.R., and when its tube was changed four days before it became broken inside the top rubber washer, owing to slight misalignment and overtightening of a gland nut. The washer had squeezed itself into the fracture, almost blocking the waterway, and preventing external leakage. Nothing was noticed until two days before, when the water seemed to return sluggishly. A combination of circumstances led to a fitter, who did not reach the engine until it was out of steam and was unaware of the exact nature of the trouble,

thinking that a driver's request for the gauge to be changed must refer to a leak from a cock and allowing the engine back into traffic. Although fractures caused in this way were known, the sealing action of the washer was almost unprecedented, but the accident would have been prevented had the repair staff been more thorough in dealing with the drivers' reports. The footplate staff, however, were not free from blame. The false gauge reading might have been discovered had the test cocks been used in accordance with instructions. The individual report on the case, stressing its lessons, was widely circulated.

Other cases were dealt with by correspondence; their leading features are set forth by Colonel Wilson. Several were due to operating failures, such as passing signals at danger, including two cases under colour-lights, failure to carry out Rule 55, wrong acceptance of a train with shunting in progress, or in one case with a train shunted from the opposite line when the signalman, although its fireman was with him, cancelled the protection afforded by his reminder apparatus. There were also cases of failing to act sufficiently carefully under a calling-on indication and of allowing a train to get out of control. Two derailments were caused by trains fouling wagons derailed by faulty loading in private sidings; the arrangements for examining such wagons were overhauled.

In one unusual case of failure of electrical signalling equipment, what must be concluded to have been a failure in the cables, destroyed in the accident, led to a false return

indication in connection with hand generator points, by which the signalman was enabled to reverse his lever irregularly and then clear a signal with trap points open. A derailment followed. The detection circuits, of obsolete type, are being replaced as quickly as possible.

In the other case an a.c. vane relay armature, through loss of damping following drop in Grid voltage, swung too far and made false contact momentarily, again allowing a movement leading to derailment. Relays of the type in question then were eliminated from detection circuits in the Region concerned. They are in use elsewhere, but not for detection, and special attention is being given to keep them in safe adjustment.

In a further case some engine brake gear dropped, following non-replacement of a split pin, and caught a point stretcher and derailed a tender. Another tender became derailed by a tyre shifting. The fitter should have realised the danger when two of the rivets failed, but misjudged the situation.

Passing to failures of equipment under certain headings, the report shows that 3,022 occurred, a reduction from 3,436 in 1951, principally in the case of coupling failures on goods trains, with the diminishing proportion of old and obsolete wagons. Broken rails also showed a marked reduction from 442 to 371, for the first time since the basis of reporting was revised in 1948. One breakage during hard frost derailed a passenger train, but the rail had been damaged by slipping wheels; it was doubtful whether the

CASUALTIES IN TRAIN AND MOVEMENT ACCIDENTS

—	Total	Killed				Injured				All casualties per million train miles	
		Total	Passengers	Railway servants	Other persons	Total	Passengers	Railway servants	Other persons	Killed	Injured
1915-1919 ...	6,122	616	174	341	101	5,506	1,731	3,600	175	1.8	16.5
1920-1924 ...	6,638	470	92	248	67	6,231	2,577	3,518	136	1.1	17.0
1925-1929 ...	7,526	368	91	210	67	7,158	3,733	3,267	158	0.9	18.0
1930-1934 ...	7,440	308	74	183	51	7,132	4,394	2,592	146	0.7	17.0
1935-1939 ...	8,376	338	86	198	54	8,038	5,342	2,576	120	0.8	18.0
1940-1945 ...	1,222 (1)	477	141	254	82	745 (1)	256 (1)	455 (1)	34 (1)	1.2	19.1 (1)
1946-1950 ...	8,878	347	91	204	52	8,531	5,647	2,763	121	0.9	21.2
1946 ...	9,529	413	120	236	57	9,116	5,691	3,281	144	1.0	22.6
1947 ...	9,203	409	148	218	43	8,794	5,871	2,785	138	1.1	22.9
1948 ...	8,683	340	87	191	62	8,343	5,554	2,678	111	0.9	20.9
1949 ...	8,651	285	44	188	53	8,366	5,640	2,625	101	0.7	20.2
1950 ...	8,329	290	60	187	43	8,039	5,483	2,466	110	0.7	19.5
1951 ...	8,176	283	97	158	28	7,893	5,328	2,482	83	0.7	19.2
1952 ...	8,470	386	160	180	46	8,084	5,505	2,472	107	0.9	19.7

(1) Serious injuries only

ACCIDENTS, EMPLOYMENT, AND OPERATING STATISTICS

—	Class I		Railway servants (March)	Passenger journeys originating (incl. season tickets)			Freight- tonnage originat- ing (excl. free hauled)	Ton- miles (incl. free hauled)	Miles operated				Passenger-miles (estimated)	
	Train accidents	Failures of rolling stock or permanent way		Total	Main line railways	London Trans- port			Main line railways			London Trans- port : Train	Main- line railways	London Transport
									Train	Shunting	Other			
Number		Thou- sands	Millions											
1920-1924	1,009	11,153	699 (2)	1,848	—	—	303	17,457	369	121	28	—	—	—
1925-1929	941	9,141	679	1,661	—	—	298	17,562	401	123	29	—	—	—
1930-1934	796	5,772	602	1,612	—	—	270	16,060	416	113	27	—	—	—
1935-1939 (1)	745	4,149	592	1,733(3)	1,255(3)	478 (3)	281	17,230(3)	412	115	29	32	18,993(4)	2,297(4)
1940-1945 (1)	387	1,60	604	1,661	1,210	451	288	23,844(5)	356	124	37	26 (6)	33,191(7)	2,609(7)
1946	1,237	5,162	652	1,855	1,266	589	262	20,639	373	116	36	30	29,231	3,029
1947	1,388	4,679	660	1,714	1,140	574	257	20,190	355	113	35	31	23,015	3,095
1948	1,293	4,398	703	1,646	996	650	276	21,502	366	112	41	34	—	25,093
1949	1,176	4,062	648 (8)	1,634	993	641	280	22,010	381	109	41	34	—	24,958
1950	1,156	3,609	628	1,613	982	631	281	22,135	384	105	40	34	—	23,898
1951	1,280	3,436	622	1,624	1,001	623	285	22,902	376	104	40	35	—	24,302
1952	1,243	3,022	625	1,574	989	585	285	22,391	376	101	40	35	—	24,048

(1) Having regard to the altered basis under the Modification Order, fewer accidents were reportable and only serious damage is included as from September 1, 1939, to December 31, 1945. The comparison is unchanged as regards traffic, movement and staff employed

(2) Four years, 1921-1924

(3) Four years, 1935-1938

(4) For year ended August, 1939, only

(5) Estimate for main lines—1942-1945

(6) Loaded only

(7) Three years, 1943-1945

(8) Railways and London Transport Executive's Staff only

ganger could have been aware of the dangerous condition. There was a considerable rise from 88 to 115 in reportable failures of engines and rolling stock; 20 were failures of locomotive wagon and van axles, with slight increase in broken tyres, and one failure of a carriage axle. In addition to the Wheatsheaf Junction firebox case there were failures of a main steam pipe, boiler tube and blast pipe fixing, again without fatality.

Other failures of track and structures were 20 fewer at 76, in the absence of severe floods during the year. The proportion of failures of coupling apparatus came to about nine to one between goods and passenger trains; the chief liability lies in weakness of drawgear. As older wagons are replaced the proportion of that in goods trains is steadily diminishing and was 36.5 per cent compared with 41.4 per cent in 1951. The figure for passenger trains remained steady at 49.3. Total accidents from all classes of failure of coupling apparatus involving collisions and derailment and/or personal injury were only 29, compared with 42 in 1951. No collision or derailment resulted from division of a passenger train, showing the security afforded by the continuous brake.

The proportion of freight stock fitted for special services rose from 13.8 to 14.2 per cent. The question of continuous brakes for freight trains generally is under examination.

Accidents at level crossings totalled 241, compared with 208 in 1951 and 233 average for 1946-50. Of these 198 were train accidents, 12 being fatal, involving collision with gates or vehicles at public road or occupation crossings, compared with 189 in 1951, when seven were fatal. The report gives details of cases where the risks arising from local development and increase in motor traffic are emphasised. Five of the six casualties at gated public level crossings were due to failure of railway staff where equipment was adequate, but the risk there is negligible compared with other road hazards. Safety at occupation crossings depends on the care exercised by users and the risk of serious derailment remains. "The problem is still under examination," says the report, "following the receipt of the British Transport Commission memorandum on the subject in 1950, but it is already clear that its solution will present formidable obstacles."

MOVEMENT ACCIDENTS

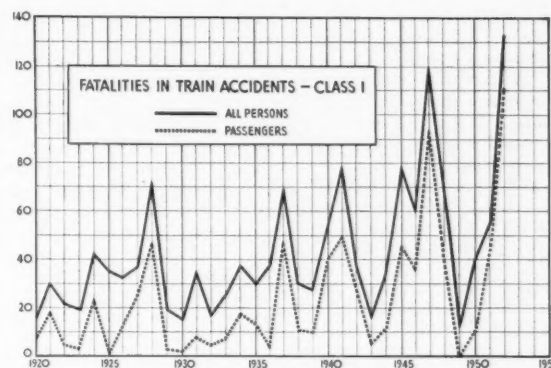
The chief interest in the movement accidents is how they affect railway servants, of whom 171 were killed in the year and 2,359 injured. In most instances it is fortuitous whether a man is killed or seriously injured, and the total of 728 fatalities and serious injuries compares with 810 in 1951, 10 per cent gain, but the light injuries rose by 7 per cent. The 1951 totals were the lowest recorded for many years. Each of the 87 where men working on the line were struck by engines or trains was inquired into. Here the progressive decline of recent years was not maintained and the proportion of fatalities was higher than usual, largely, however, a matter of chance.

In some cases a lookout man was at fault, in others the protection inadequate. Sometimes men were aware of a train but acted incorrectly, at others unaware of it from want of vigilance. Some mishaps arose from accidental slipping or other causes. "Awareness of danger is of little value without sound judgment," and in 33 instances men moved out of the way of a train into the path of another, disregarding an important rule.

EDUCATION IN SAFETY PRECAUTIONS

Colonel Wilson observes that: "Continual education of the men in the avoidance of risks is the most effective means of preventing these accidents, and the steps taken to this end by the Railway Executive include primary training and regular refreshment in the safety rules and principles; opportunity is also taken at meetings of supervisors and staff to re-affirm the necessity for every care when working on the line, and in many instances circulars are issued describing the circumstances of accidents and the lessons to be learned from them. It seems, however, that the application of these lessons often falls short in practice,

perhaps because the permanent way inspectors do not always realise their continuing responsibility for the safety of the men in their charge. They can do much good when visiting their gangs by paying special attention to the safety methods adopted by each of them and by correcting mistakes and giving advice based on their own wider experience. Example by the senior men is particularly im-



Comparison of train accident fatalities, 1920-52

portant and it is to be regretted that an inspector and no less than 29 gangers and sub-gangers were among the casualties in 1952."

The details in the report covering individual cases show clearly how necessary it is to keep constant watch on this matter of education and training in the exercise of proper care, small misunderstandings, or the taking of a chance, having all too often ended in fatal consequences. Even five lookout men were victims of their own mistakes.

After a particularly thorough review of the year in main detail, Colonel Wilson characterises it generally as "one of steady progress in operating efficiency and modernisation of equipment. The supply of steel and other basic materials became easier towards its close, and there was again a slight improvement in the strength of the track maintenance staff. There are still some arrears to be overtaken in the renewal of locomotives and particularly rolling stock, but the position now gives no grounds for anxiety, and the condition of the locomotive fleet as a whole leaves little to be desired. As I have mentioned, it has not yet been possible to restore the track everywhere to its prewar standard, but progress in this direction was continued during the year, and justified some notable accelerations of express passenger trains. The reduction in the number of speed restrictions on account of track condition also made its contribution to a marked improvement in timekeeping."

The predominating cause of such accidents as fell to be reported was "failure of individual members of the staff to measure up to their responsibilities in the course of operation or routine maintenance, or even to concentrate their attention on simple duties." He continues, however, "This does not suggest that there is any general recession from the strong sense of duty which is so characteristic of British railwaymen, but there are some men, perhaps more than formerly in certain localities, who do not appear to have absorbed the traditions of the railway service. To some extent this may be the outcome of difficulties in finding men of suitable character and qualifications for responsible posts in competition with other forms of employment. There are also other factors which affect morale and the self discipline of individuals which is so important to railway safety, and in the circumstances of today, more than ever seems to depend on training, supervision of the right kind and leadership. No one, however, should be discouraged by adverse public criticism, which is not always well founded, and I am sure that in reviewing the causes of past failures, management and men alike, with the support and help of the great railway trade unions, will continue and strengthen their efforts towards the achievement of better safety records in the future."

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Experiment in Electric Traction

January 13

SIR,—It is common knowledge within the industry that a Southern Region express electric unit was fitted with flexible drives of Continental origin some time ago and Mr. Rodgers may therefore easily make his own comparisons.

With regard to the second paragraph of his letter in your issue of January 8, it cannot be too often mentioned that the h.p. rating of an electric motor is meaningless without its characteristic curve. For example, the Southern Region motors referred to are working at the limit of adhesion during acceleration under which conditions they actually develop a maximum of nearly 400 h.p. This is the greatest power per axle which can be absorbed in rolling stock of average weights.

It must be observed that the major Swiss railways have never used axle-hung motors and are, therefore, not in a position to make the deductions ascribed to them by Mr. Rodgers. Furthermore from personal observation it appears that what would be regarded as reasonable maintenance costs on the Continent would often be regarded as excessive in this country.

Yours faithfully,

W. J. WILLIAMS

10, Rathgar Avenue, Ealing, W.13

Three-Aspect Signalling

January 12

SIR,—With reference to Mr. Courtenay Barry's letter in your issue of January 8, there is in existence over a considerable portion of the former Highland main line a system of signalling which while strictly not three-aspect does in fact provide the corresponding indications.

Because of the length of many of the loops each is controlled by two boxes, the distant for the further box being under the home of the nearer and in effect being a repeater of the station starter. The first, or outer, distant is not normally cleared until the road is clear throughout, although I have seen it "off" when the station starter, and hence the inner distant, are "on."

The disadvantage of this system appears to be the extensive slotting required to avoid false indications, par-

ticularly as further complications are introduced by the position of the "direction levers" associated with the single line instruments in the booking office.

If my memory is correct, this system was actually in use at Gollanfield Junction until quite recently, when the layout was simplified and the working concentrated in one box.

Yours faithfully,

C. F. WELLS

The Sheiling, 16, Glebe Road, Cheam

British Railways Timetables

January 12

SIR,—Mr. H. C. Hoskin's letter in your issue of January 1 draws attention to the fact that the present geographical Regions of British Railways, however convenient for administrative purposes, are not very helpful as a guide to train services.

Would it not be possible, without changing the existing Regional scheme, to adopt a series of "line" designations such as are used on the London Transport system? For this purpose the names of the old pre-grouping companies could easily be revived, Marylebone-Manchester thus becoming the Great Central Line, St. Pancras-Leeds the Midland, and so on. Wherever convenient, stations could be named "Central" or "Midland," as the case may be. This has already been done in some cases, e.g., Sheffield Midland, Staveley Central.

Such a scheme would be a great help to main-line travellers; its application to branch lines perhaps is less necessary and not always practicable. It would have the added advantage that railwaymen and not a few passengers still refer to lines by these old names. The present clumsy titles of the timetables, mentioned by Mr. Hoskin, would be dispensed with. *Bradshaw* incidentally has retained the erroneous but more convenient Regional titles.

As an example of the confusion caused by the present system it is perhaps worth pointing out that as late as last summer a notice on Banbury Station read "Change for Eastern Region," despite the fact that many of the G.C. stations referred to are now "London Midland" territory!

Yours faithfully,

R. F. T. BULLIVANT

The University, Sheffield, 10

Publications Received

A History of Railway Locomotives Down to the End of the Year 1831. By the late C. F. Dendy Marshall. London: The Locomotive Publishing Co. Ltd., 88, Horseferry Road, S.W.1. 11½ in. x 8½ in. x 1 in. 271 pp. Illustrated. Price £2 10s.—Much painstaking research during the past 25 years has added materially to our knowledge of the early development of the steam locomotive, but the results have been published in scattered articles, many from the pen of the author of this book, and contributions to the proceedings of learned societies. Just before his death, Mr. Dendy Marshall completed his co-ordinated history, now published. It contains some new material, but nothing momentous to the well-informed student, and its main value is as a source book, copiously annotated, which unites for the first time the results of modern study. A great difficulty experienced by historians in this field is what the

author calls "inordinate, sometimes reckless, and even unscrupulous hero-worship." The present book deserves its claim to strict impartiality. The scheme that has been adopted is to deal with one maker at a time, rather than strict chronology, which has value in a reference work, but precludes continuous narrative.

Paint-Spraying Equipment.—A new design of spray gun known as the W.H. type has recently been added to the range of paint-spraying equipment manufactured by B.E.N. Patents Limited, a division of Broom & Wade Limited. Details of the gun are given in a leaflet issued by the firm which includes recommended nozzle settings for various materials, paints, lacquers, distempers, both oil and waterbound, varnishes, and so on. Both the self-centring material needle and the variable spray control needle are of stainless steel. This latter device enables the operator to vary the width of

spray, a change from round to fan spray without interrupting the spraying.

Calendars for 1954.—We acknowledge the receipt of calendars for 1954 from the South African Railways, A.C.V. Sales Limited, British Timken Limited, the Butterley Co. Ltd., the Glacier Metal Co. Ltd., London Spinning Co. Ltd., Swedish Lloyd, Swiss National Tourist Office, the Railway Convalescent Homes, *The Irish Times*, the *Railway Review*, and Railway World Limited.

222 Club Staff Association News.—The *222 Club Staff Association News* is a new publication for members of the Association amongst the British Transport Commission Headquarters Staff, and others, at 222, Marylebone Road, London, N.W.1. It is intended to produce an issue every month. The first issue, which appeared in December, includes news items, details of forthcoming social events, and small advertisements.

THE SCRAP HEAP

Class Distinction Blurred

Two females were convicted at the Gorbals Police Court of having, the previous day, travelled in a first class railway carriage from Paisley to Glasgow, with third class tickets, and sentenced to pay a fine of half-a-guinea each, or suffer ten days imprisonment. One of the girls stated that, having partaken of a dram, she could not distinguish the difference of the vehicles.—*From "The Glasgow Herald," January 9, 1854.*

Swan Stops Train

A swan which landed on the track near Cannon Street Station caused an electric train from Dartford to arrive 20 min. late. The motorman saw the bird as the train approached the station and stopped the train. When he wanted to re-start, he found that the train had stopped in such a position that the current-collecting shoes were not in contact with the live rail. An empty train was used to assist the stranded train into the platform.—*From "The Manchester Guardian."*

Pat on the Back

I wonder if the North of Ireland public really appreciate the significance of the arrangements for summer travel from London to Belfast recently announced by British Railways? A train with only one stop (Crewe) from Euston to Morecambe en route to Heysham is evidence of an anxiety to return to something like prewar conditions. It is true, of course, that the L.M.S.R. ran an Ulster express from Euston to Morecambe non-stop every day for the Heysham service, and not only in the summer. . . . It is probable that the service was run at a loss; but it was British railway enterprise at its best. . . .

British Railways deserve a pat on the back for these new facilities. Now if something could be done to improve the Stranraer service, especially as regards rolling stock and the departure of the ship for Larne (often delayed because the mails are late), things would really be tending towards a prewar standard.—*From a letter to the "Belfast News Letter."*

[Reference to the acceleration of the London-Belfast via Heysham service was made in our January 8 issue.—ED., R.G.]

A Curious Epitaph

The following inscription, for which we are indebted to *Limestone Chippings*, the staff magazine of the Lime Division of Imperial Chemical Industries Limited, is on the tombstone in Bromsgrove Churchyard to the memory of Thomas Scaife, an engine driver on the Birmingham & Gloucester Railway, who died as the result of a locomotive boiler explosion on November 10, 1840. It was erected in 1842, and this lapse of time possibly explains why the engine depicted on the

tombstone is one of the 4-2-0 American (Norris) locomotives supplied for working the Lickey incline, although the engine which exploded was a privately-owned experimental locomotive named *Surprise*, sent for a trial run in the hope that the Birmingham & Gloucester Railway might be induced to buy.

"My engine now is cold and still.
No water does my boiler fill.
My coke affords its flame no more.
My days of usefulness are o'er.
My wheels deny their noted speed,
No more my guiding hand they need.
My whistle too has lost its tone,
Its shrill and thrilling sounds are gone.
My valves are now thrown open wide.
My flanges all refuse to guide.
My clacks also, though once so strong
Refuse to aid a busy throng.
No more I feel each urging breath.
My steam is now condensed in death.
Life's railway o'er, each station passed.
In death, I'm stopped, and rest at last.
Farewell, dear friends, and cease to weep.
In Christ I'm safe, in Him I sleep."

W. T. E.

One inscription of this type appears on a stone in Whickham Churchyard in memory of Oswald Gardiner who lost his life on the Newcastle & Carlisle Railway in 1840. Substantially the same inscription was used on the tombstone of a Derby engine driver in Derby Cemetery; and also on a tombstone at Winwick, near Warrington, and in the cemetery at Alton, Illinois.

African Bradshaw

With the introduction of the *Bradshaw* cult a new reverence for time has entered the lives of Africans who, as everyone knows, before the coming of the White Man were very unpunctual people, depending entirely on that primitive and unreliable instrument, the sun. Now this is all changed. We were sitting in Zaria rest-house, listening to the news bulletin, when we heard the announcer say (in English, Hausa, Yoruba and Ibo), "The 10.30 p.m. train from Lagos for Kano will arrive on time tonight." "Why," we asked, "does he say that the train will arrive on time?" "For the very obvious reason," said the white District Commissioner, "that otherwise everyone would naturally expect it to be three or four hours late; those who were intending to travel by the train would turn up at the usual time, and (since this is a Mondays, Wednesdays, Saturdays and Sundays train) would have to wait some time for the next."

It is not only a new reverence, but new forms of enjoyment that the cult of the goddess has brought to Africa. In England people catch trains, miss trains, are in a hurry to be in time for trains, pace up and down the station waiting for trains. Trains are regarded (except by railwaymen, engine-spotters, and writers of children's stories) in a crude instrumental way. But in Africa people

delight in trains, celebrate trains, cherish trains. When the 3.50 a.m. (Wednesdays, Fridays, and Sundays) from Dakar arrives at Tambacounda, Tambacounda citizens and citizenesses are there on the platform to greet it. Everybody gets into the train; everybody talks, laughs, eats cola-nuts and oranges.—*Thomas Hodgkin in "The Spectator."*

Carriage Forward

or "What happened to Porter Bernard Betts in the execution of his duty" (See *The Scrap Heap* for January 1, 1954)

What with drivers mislaid and guards left behind,
It was morally certain the mischievous mind
Of some irresponsible Lord of Mis-chance
Would lead some poor porter a deuce of a dance.

Sure enough, just as Bern put the last suitcase down,
The 4.35 whisked him straight off to Town.
The train was a really and truly express,
Which left Porter Betts in a bit of a mess.

I, too, would have found it a shock, I confess,
And, as Bernard had been well brought-up, you can guess
He'd be bound to consider it most impolite
To turn up in shirtsleeves in Town, late at night.

His mother, meanwhile, had a bit of a turn,
As hour followed hour without news of her Bern,
For the station staff, rather short-handed just then,
Couldn't spare anybody to give her the "gen."

Brief messages, thrown out at suitable stations,
Explained the young porter's strange peregrinations.
At home, a much better-informed Mrs. B.
Was expressing her views more than eloquently.

Like all the best stories it ended all right
And Bernard was carted back home the same night,
But, though fortune's frowns must be borne willy-nilly,
To roam round at night in one's shirt-sleeves is chilly.

A N D

Bern says next time he's whisked off without notice
He'd like to make sure where his what's-its-name coat is!

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Improved Heating for Electric Trains

An improved type of steam heating tender for electric main line trains is to be introduced on the Cape Western and Natal Systems. The new tenders will be fitted with automatic oil-burning generators and will be much cleaner and more effective than the present coal-burning type. As the generators are fully automatic, no staff will be required for fuelling and a substantial saving will therefore be made in the operation of the new tenders.

The 16 vehicles which are being built will be finally assembled in the railway workshops at Durban. The steam generators are of American manufacture, but the water and oil tanks are being built in the railway workshops at Pietermaritzburg.

RHODESIA

Express Goods Service

On January 4 a new 24-hr. express goods service was inaugurated between Bulawayo and Salisbury. In both cities the railway has instituted its own cartage service for collection and delivery. No restrictions are imposed on the type of traffic to be accepted, with the exception of returned empties. Special labels are available for attachment to traffic consigned by the special service. Extensions of this service to include Umtali and Gwelo, and to Lusaka and N'dola in Northern Rhodesia are under consideration.

NEW ZEALAND

Rimutaka Tunnel

Trains should be running through the Rimutaka tunnel, linking Wellington with the plains of the Wairarapa, by the end of 1955, six months before the contracted date. Rapid work by the contractors who are driving the 5½-mile tunnel is responsible for the tentative revision in the date of completion of the deviation as a whole. Though the tunnel contract called for completion by the end of July, 1955, less than a mile now remains to be driven, and the contractors are expected to finish boring by the end of April, unless in the intervening four months they are delayed by bad going. After that it will probably take two months to finish the concrete lining. An air shaft, about 12 ft. by 6 ft., and about 350 ft. to 400 ft. in length, has also to be driven vertically from the middle of the tunnel to the top of the mountain above to provide ventilation. This is a five months' task which should be finished about the end of September. A longer task is the laying of a concrete floor in the tunnel to provide a good roadbed for the track.

Much has yet to be done on the Mangaroa and Featherston approaches. Work began recently on the short Mangaroa tunnel which will carry the new line into the Mangaroa valley. This should be finished by the end of 1954. On the Featherston side, deep cuttings, which are cheaper, will be excavated instead of the two small tunnels projected (one of 8½ ch. and the other of 11½ ch.). A contract has yet to be let and the work is expected to go through the winter as the material to be excavated is mainly rock. Progress will depend to some extent on the weather.

CANADA

Extension of Trailers-on-Flats Service

The Canadian Pacific and Canadian National Railways have announced the extension of their trailers-on-flats freight service to include the handling of vanload consignments between Montreal and Toronto. Previously, the railways handled some less-than-vanload consignments in this trailer van service.

Freight in lots of 6,000 lb. or more will be handled in railway-operated trailer vans which will be carried on specially equipped railway flat wagons in fast freight train service between the two cities. Freight will be loaded at the consignor's place of business directly into railway-operated trailer vans on one day and delivered at the consignee's plant the next morning in the same vans.

The two railways introduced the trailers-on-flats service for the conveyance of less-than-wagonload consignments between Montreal and Toronto 13 months ago.

UNITED STATES

New Stock for "City of Denver"

On January 10 two new streamline train sets went into service between Chicago, Omaha, and Denver on the "City of Denver" schedule of the associated Chicago & North Western and Union Pacific systems. The original trains, introduced on June 18, 1936, ran a record total of 12,139,160 miles up to their withdrawal early in 1953; since then equipment from the spare "City of Los Angeles" and "City of San Francisco" trains has been used on the "City of Denver" runs.

A feature of each of the new trains is a refreshment lounge which is a reproduction of an English inn, complete even to leaded windows, and named "The Pub." The accommodation also includes one all-room sleeping car, one car with both rooms and roomettes, two cars with convertible sections, reclining chair cars with leg-rests to the seats, a club lounge for Pullman passengers and a coach lounge, full-length dining car,

combined kitchen and dormitory car, and baggage car.

At their fastest, the "City of Denver" streamliners were scheduled to cover the 1,049 miles between Chicago and Denver in 16 hr. westbound and 15 hr. 35 min. eastbound; during the war 1 hr. was added to each schedule, but after the war the previous times were restored. When the Interstate Commerce Commission laid it down that no train must operate at more than 80 m.p.h. over any route not equipped with automatic train control, some deceleration became necessary west of Omaha, and the present times are 16½ hr. westbound and 16 hr. eastbound (65.6 m.p.h.), including 15 intermediate stops in the former case and 16 in the latter.

ARGENTINA

Modernising Steam Locomotives

Thirty-nine steam locomotives have undergone modifications, to increase their tractive effort and economise on fuel, at the Tolosa Works of the General Roca Railway. Seventy-five more are to be similarly treated. The work is being carried out by the Government as a result of technical advice tendered by the French locomotive building group Gelsa.

Diesel-Electrics for Mitre Railway

Three 1,400 h.p. diesel-electric broad gauge locomotives, built by General Electric, have been off-loaded in the port of Buenos Aires. These are the first of 25 allotted to the General Bartolomé Mitre Railway.

BRAZIL

Underground Railways

The Vice-president of the Executive Commission for the Underground Railway (Metropolitano) at Rio de Janeiro announces that work will start on the first, and most difficult, section this month. The first part of the project, drawn up by Société Générale de Traction pour le Brésil, subsidiary of Société Générale de Traction et d'Exploitation, was approved by the Commission at the end of November.

The Prefect of Sao Paulo has received a proposal from an American firm to build an underground railway in that city. The cost of the work would be borne by the contractors who, in return, would work the line for a number of years. Both in Rio and Sao Paulo, the geographical formation of the city areas causes serious traffic congestion at rush hours which can be relieved only by overhead or underground lines. Projects for an underground in Rio have been submitted periodically during the last 20 years.

*Sixteenth International Railway Congress***Organisation of Track Maintenance***Present tendencies: use of mechanical equipment: economic aspect*

THE replies of fourteen railway administrations, mostly in English-speaking countries and including British Railways, London Transport, Coras Iompair Eireann, East African Railways & Harbours, and the Rhodesian and South African Railways, on Question 1 on the agenda of the International Railway Congress to be held in London next May are summarised in a report by Mr. O. Hjelte Claussen, Permanent Way Engineer, Danish State Railways. The widely-differing conditions of standards of living and climate in countries as diverse as the U.S.A., the Sudan, Finland and Ceylon aggravate the difficulties of a comprehensive summary, and he points out that in such circumstances a comparative statistical estimate of the maintenance methods of the different countries and of their results is quite impossible.

Maintenance Gangs

The first salient point of his report is that in the more developed countries, rising costs of labour and shorter working hours are gradually causing the supplementation or replacement of the small short-length maintenance gang by larger mechanised units. Labour-saving mechanisation is unsuitable for small gangs, but the latter are usually retained for patrol inspection and light routine maintenance, especially on country branch lines and in large station yards. On some systems, however, such branches are maintained by a relatively limited number of large gangs provided with motor trollies or road vehicles.

The heavier work on most railways in the more developed countries is carried out by large mechanised extra or district gangs, the latter having permanent headquarters. They are, perhaps, 20-strong and are usually complementary to small length-gangs. In a few cases, however, the district gangs are constituted by the amalgamation and supersession of the former length-gangs, whose work is then done by small mobile patrol units. Exceptions to the use of large mechanised gangs are in countries with severe winters where they cannot be employed efficiently during the winter months. There is no doubt that considerable reductions in man-hours can be effected by the employment of district gangs, and that they substantially increase the volume of work completed in a given time.

Several countries are experimenting with new maintenance methods. One that is of some interest is known as the "detour method," but it would seem to be suitable only for double-track sections carrying a limited volume of traffic. In this method, about five miles of one track are closed to traffic between permanent or temporary crossovers—

the other track being worked as single line—and taken over by a gang of about 140-150 men. They carry out complete overhaul, including relaying if necessary, during the eight-hour working period each day. It is claimed that a saving of about 56 per cent of the man-hours worked by normal small length gangs on similar work is effected by this method.

Recording Devices

The preparation of maintenance programmes is greatly assisted by the use of detecting-recording devices such as Hal-lade and Mauzin machines which enable the exact positions of defects to be spotted. Not many of the railways concerned are reported to be using recording devices, and in any case they are complementary to manual inspection.

In the organisation of maintenance work some speed restrictions are unavoidable, but they should be reduced as far as possible, and to minimise their effect on traffic, it is the practice on some railways to limit their imposition to one, at any one time, on each operating district. Close collaboration with the operating department is essential at all times, and the density and distribution of traffic has to be studied carefully.

As to mechanisation, it is generally agreed that well-trained, skilled men only should work the machines, and that the same man should remain on the same unit so long as it is in use, irrespective of where it is required to work. Machine failures are so costly in loss of working time and in other ways that well-equipped and trained field-repair staff is essential, as well as central shops for heavy repairs. Few of the replies summarised by Mr. Claussen give categorical information regarding the influence of traffic on mechanisation, but it is agreed that the average interval below which on-track machines cannot begin working is about half-an-hour.

On single lines with heavy traffic, mechanisation is not economical because of the time lost due to passing trains, and on most of the railways concerned mechanised gangs are still in the experimental stage. The consensus of opinion is that the results of mechanisation are entirely satisfactory and that it produces more uniform work and a track that retains its good condition for long periods; it is therefore economical in the long run.

Except some American railways, few of those replying construct lineside paths for off-track equipment and other movements. They are useful in allowing of the safe movement of labour, notably on bicycles, and of more elbow-room for work generally. The provision of wide cesses is recommended in

all cases of future construction for these reasons.

The latter part of the report is devoted to the economic and financial aspects of track maintenance. Various railways claim reductions in manpower during the last 20-30 years, varying from 20 to 65 per cent, as a result of the use of heavier, longer, and better rails and fastenings; more sleepers per mile; better ballast; measured shovel packing; welding; and grinding, besides mechanisation and improved organisation. These economies have been secured despite great increases in weight and speed of traffic. The annual average expenditure on permanent way appears to work out at about U.S.A. \$1,000-1,300 per km. maintained. Trackwork performed by contractors is reported to be insignificant.

The only railway giving any information on comparative costs of hand and mechanical packing (tamping), states that the costs for gangs using Matisa or Jackson tampers are about 40 and 65 per cent respectively, of the costs of gangs using hand packing under the same local conditions. In addition to these direct savings, there are considerable long-term economies due to the longer time mechanically-packed track retains its surface as a result of uniformity in the work done by the machines.

EDUCATION OF LOCOMOTIVEMEN: MUTUAL IMPROVEMENT CLASS COMPETITION 1953-54.—In the North Eastern Region semi-finals of the Mutual Improvement Class 1953-54 competition on January 13 Hull and West Auckland qualified for the final. West Auckland with 56½ points defeated Gateshead (48½) and Tyne Dock (48½), and Hull gained 58 points, against York's 49½. The two finalists compete at the York Railway Institute on January 20. The Hull team was defeated in the Regional semi-final last year by Derby.

QUICK ERECTION OF BAILEY BRIDGE OVER RAILWAY.—To assist in restoring the sea defences after the 1953 floods on the East Coast, a 292-ft. Bailey bridge was erected in some 18 hr. at Birchington, over the Kent Coast line of British Railways, Southern Region. The bridge was designed and constructed by Thos. Storey Limited, manufacturers of Bailey bridging. The object was to permit building materials to be carried by lorry across the railway line, a section of which had been washed away. The bridge can carry 20-ton lorries and has a 16-ft. headroom. It consists of a 52-ft. span single-single Bailey bridging, supported on two 15-ft. high Bailey crib piers and two 120-ft. approach spans supported by Bailey crib piers to a height suitable to the 1 in 13 gradient. Work began on a Saturday morning, continued until 6 p.m. the same day, and recommenced at midnight when the railway line was closed until 6 a.m.; the whole structure was completed at 5 a.m. on the Sunday, and is still in service.

Electric Locomotives for Victorian Railways

Main-line 2,400 h.p. units for mixed-traffic operating over severely graded sections

TWENTY-FIVE 2,400-h.p. 1,500-V. d.c. mixed-traffic locomotives of the Co-Co type are being built by the English Electric Co. Ltd. for service on the Gippsland main line of the Victorian Railways which is being equipped for electric traction as far as Traralgon, 97½ miles from Melbourne, and will be the first main line in Australia to be electrically operated. They are equipped with rheostatic electric braking.

The Gippsland line includes severely graded sections, the maximum being 1 in 50. Eastbound freight trains of 550 tons weight will be operated by a single electric locomotive, capable of sustaining 30 m.p.h. against the 1 in 50 ruling gradients facing eastbound trains. Westbound loaded mineral trains weighing 1,100 tons will be hauled by two electric locomotives over the first eight miles from Morwell to Moe, where the ruling gradient is 1 in 50 and by one over the 81 miles from Moe to Melbourne.

Successful Test Runs

The ruling gradient facing westbound trains between Moe and Melbourne is 1 in 110 and one electric locomotive will haul 1,100-ton trains at 30 m.p.h. against this gradient. It is stated that during test runs at site, the performance of the locomotives completely fulfilled theoretical expectations.

The introduction of electric working between Melbourne and Traralgon will enable the running times of freight and passenger trains to be reduced sub-

stantially, compared with existing timings for steam locomotive operation. The respective timings are given in the accompanying table; the electric locomotive times are estimated.

Section	Service	Load, tons	Distance (miles)	Steam timing	Electric timing (estimated)
Melbourne-Traralgon ...	Passenger ...	275	97½	190 min.	130 min.
Traralgon-Melbourne ...	" ...	275	89	300 "	200 "
Melbourne-Morwell ...	Through freight ...	550	89	350 "	230 "
Morwell-Melbourne ...	" ...	1,100			

stantially, compared with existing timings for steam locomotive operation. The respective timings are given in the accompanying table; the electric locomotive times are estimated.

The substantial reductions in running times with electric traction will be achieved as a result of improved locomotive performance during acceleration and on rising gradients and by the use of rheostatic braking, which enables freight trains to descend lengthy and steep gradients without the imposition of speed restrictions. Using rheostatic braking alone one locomotive can hold down the speed of a 1,100-ton mineral train to 35 m.p.h. on a 1 in 50 gradient.

In addition to the increased traffic capacity which will be made available as a result of greatly improved locomotive

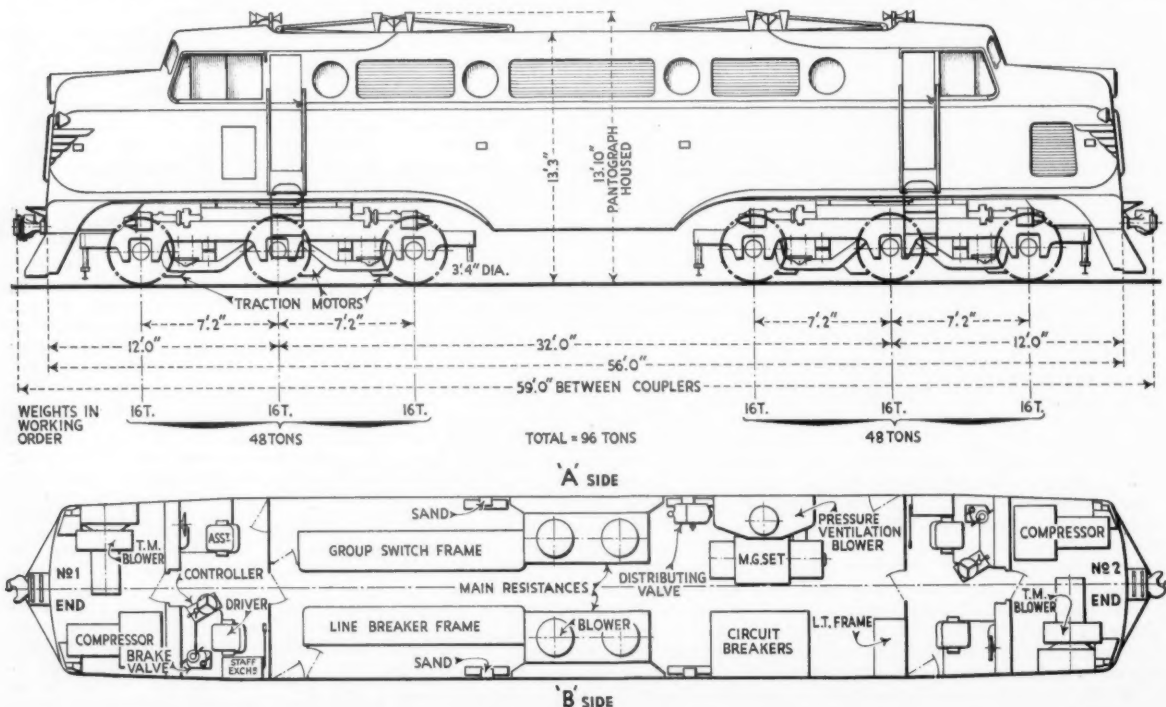
performance, a substantial reduction in costs of motive power operation and maintenance is indicated when the Gippsland electrification is completed.

The principal dimensions and data of the locomotive are:—

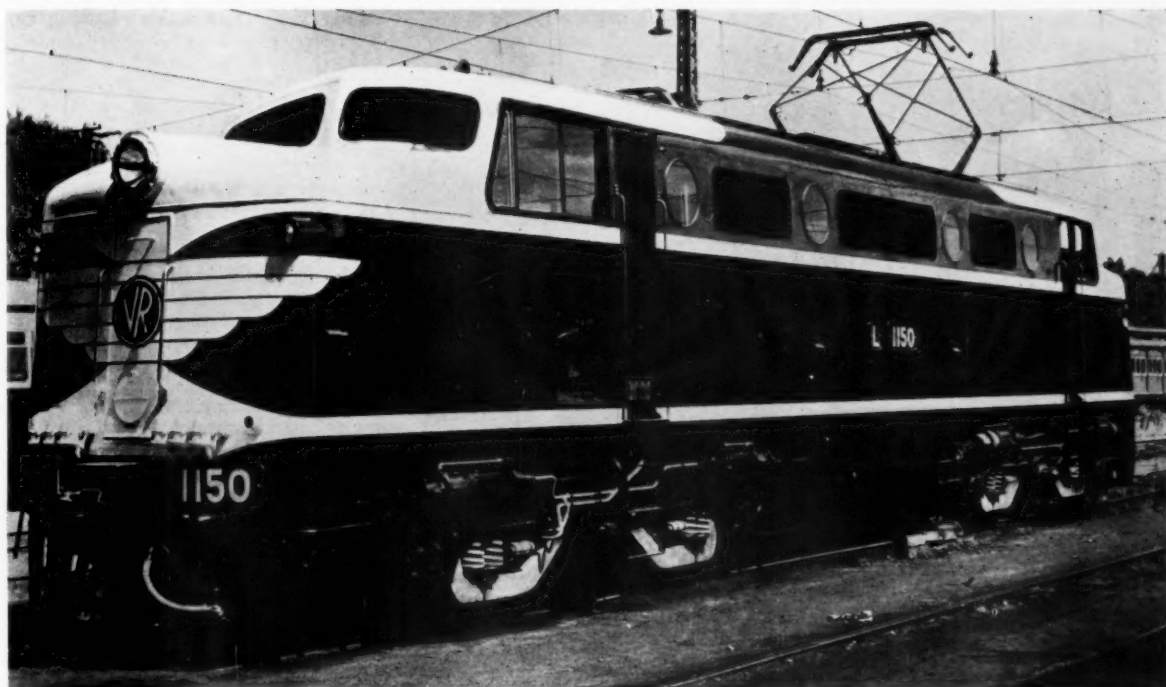
Gauge ...	5 ft. 3 in.
Length over couplers ...	60 ft. 10 in.
Overall width ...	9 ft. 3 in.
Overall height (pantograph housed) ...	13 ft. 9 in.
Total wheelbase ...	46 ft. 4 in.
Rigid wheelbase (bogie) ...	14 ft. 4 in.
Wheel diameter ...	40 in.
Weight in working order (adhesive) ...	96 tons
Maximum tractive effort (25 per cent adhesion) ...	54,000 lb.
Maximum axle loading ...	16.25 tons
One hour tractive effort (full field) ...	28,700 lb. at 29.5 m.p.h.
Maximum rheostatic braking effort ...	44,000 lb. at 35 m.p.h.
Continuous tractive effort (full field) ...	25,200 lb. at 30.4 m.p.h.
Maximum service speed ...	75 m.p.h.

Underframe and Superstructure

The underframe and superstructure are an all-welded, single unit. The main longitudinals, of rolled steel joists, extend the full length of the locomotive,



Elevation and plan of the locomotive, with principal dimensions and layout of equipment



Victorian Railways main-line electric locomotive of 2,400 h.p., built by the English Electric Co. Ltd.

between the dragboxes. Secondary longitudinals of channel section are carried by outriggers from the main longitudinals. The top surface of the underframe is covered by an all-welded deck plate and the under side of the main members is plated, forming a robust box-section. The dragboxes are welded structures, heavily gusseted. The buffer beams are rolled to the shape of the end profile of the locomotive superstructure. The upper members of the bogie centre castings are spigoted into the bolster bottom plates and secured by bolts.

The underframe carries four sidebearers for each bogie, the upper pads of which are carried on outriggers. Shims are provided to maintain correct working clearances without removing the bogies. The bearing pads are faced with manganese steel liners. Brackets and trimmer members are welded to the underframe to support handbrake rigging, traction motor leads, motor generator set, and so on. The side framing carrying the superstructure is fabricated from rolled-steel tee sections and angles, the sides being curved slightly to stiffen the panelling and reduce drumming. The side frame members are formed into square section frames, which combine as a deep truss member, adding considerable stiffness to the underframe and reducing deflection. The sheet steel superstructure panelling is welded to the frame members and ground flush to give a clean exterior finish.

The framings for the cab bulkhead and nose sections are prefabricated and welded to the underframe. The rear bulkhead and sides of the driving cabs

are covered in plastic finish panels and the ceiling and bulkheads are insulated with hardboard. The roof sections carrying the pantographs are removable to permit installation of the control equipment, and the centre roof section, covering the resistance compartments is a fixture and provides bracing for the sides of the superstructure. Eight large capacity sandboxes are bolted to the underframe floor, two in each nose compartment sanding the outer wheels of

the bogie, and four in the centre of the locomotive, sanding the inner wheels. Removable chequered floor plates are provided in the gangway of the equipment compartment and provide access to cabling and conduit runs.

Bogie Design

The three-axle bogies, which are suitable for conversion to 4 ft. 8½ in. gauge, are non-articulated, the tractive forces from each bogie being transmitted to

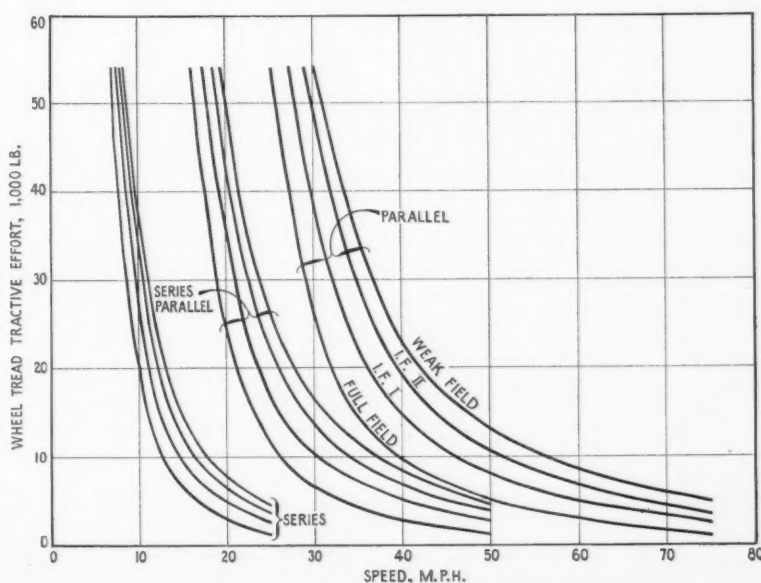
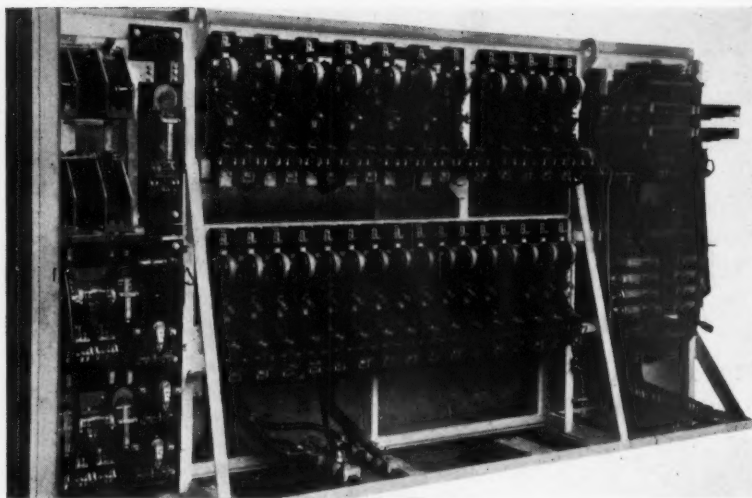


Diagram showing locomotive characteristics



High-voltage equipment frame No. 1, showing line breakers, circuit and resistance contactors

the drawgear through the centre pivots and underframe structure. A nose suspended traction-motor is mounted on each axle. The bogies are of the double-swing bolster type and are fitted with drop-type, equalising beams. Ample spring range is provided by the elliptical laminated bolster springs and coil springs to the equalising beams.

The load from the locomotive superstructure is transferred to each bogie through a centre bolster casting, to four laminated semi-elliptic spring groups carried on spring planks suspended from the bogie transoms by four pairs of inclined swing-links. Manganese-steel liners are fitted to the rubbing faces of the side-bearer pads, and to the thrust faces of the bolsters. Lateral movement is limited to 2 in. on each side, rubber pads being provided on the side-frames to cushion transverse blows.

The lower member of each bogie centre casting is spigoted and welded to the bolster beam, while the upper member is spigoted and bolted to the underframe transom. Manganese-steel liners are provided on the thrust faces of both members. A liner of anti-friction material is interposed between the members on the load carrying faces. The bolster beam is fabricated from rolled-steel plate, and all bogie sub-assemblies are stress relieved before attachment. The bogie frame is a fabricated structure and jig built to close limits. The distance between frame centres coincides with the centres of the axlebox journals and spring gear, thereby avoiding eccentric loading of the frame.

The side frames are of box-section and combine high torsional stiffness with light weight. The transoms are also of box-section, and headstocks of channel section are attached to the side frames by riveting and reinforced by large gussets.

The drop-type equalising beams, which are of forged steel, are located on

top of the axleboxes, which are fitted with roller-bearings carried in cast steel housings. The faces of the axleboxes and guides are fitted with manganese-steel liners.

Four air-brake cylinders are mounted on each bogie, each cylinder operates clasp type brakes on the adjacent wheel and one brake block of the centre wheel through appropriate brake rigging. The air-brake system allows braking up to 85 per cent of the total weight of the

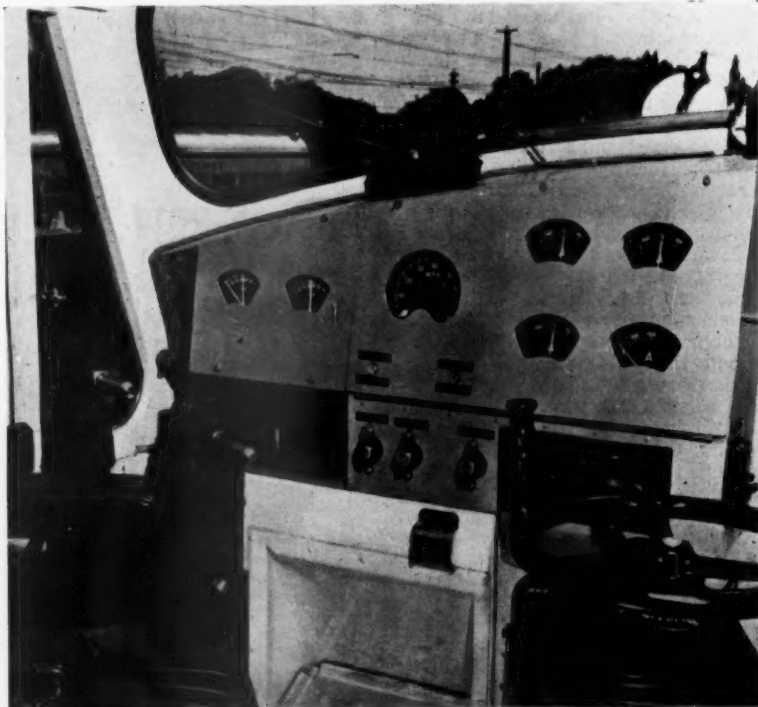
locomotive. There is also a hand brake.

The equipment provides for 42 power notches of which 21 are in series grouping, 12 in series parallel grouping and nine in parallel grouping. Three weak-field running notches and a full-field running notch, in which there is no resistance in circuit, are obtainable in each motor grouping. There is therefore a total of twelve running notches which may be utilised continuously. The wide range of power notches provided gives the locomotive great flexibility and covers all operating requirements. Rheostatic electric braking is obtained by separately exciting the traction motor fields and loading the armatures by current flow through resistors. This arrangement gives effective braking over a wide range of train speeds without affecting traction sub-station equipment.

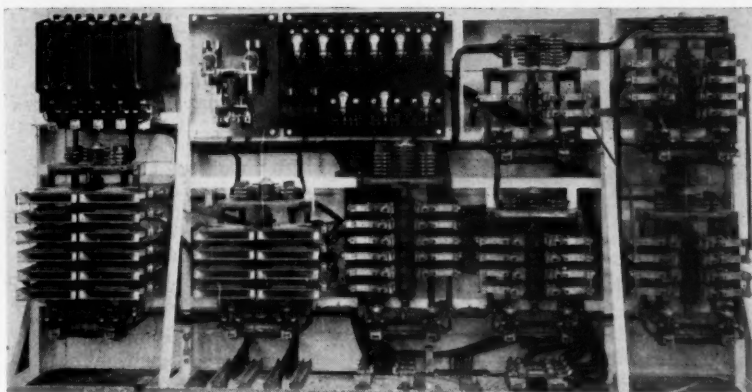
Traction Motor Circuits

The power supply is taken from the overhead line through one of two pantographs through pantograph and equipment isolating switches. Contactors insert or cut out steps of resistance in the traction-motor circuits in accordance with the setting of the master controller. Motor grouping, field weakening and reverser switches are contained in the traction motor circuits. The motor grouping switches are electrically interlocked with the resistance contactors to ensure that the power circuit is interrupted only by the line breakers.

Three axle-hung series wound, forced ventilated, type EE 519 traction-motors,



The arrangement of controls and equipment in the driver's cab



High-voltage equipment frame No. 2, showing group switches for transition, braking, and field weakening

are mounted in each bogie of the locomotive. Each motor, which drives its respective axle through single-reduction spur-gearing, has a one hour weak-field rating of 400 h.p., 460 amps. and a continuous weak-field rating of 360 h.p., 420 amps. at 700 V. The motors each have grease lubricated roller armature bearings and oil lubricated sleeve type whitmetal axle suspension bearings.

The final drive gearing is enclosed in a welded sheet steel gearcase supported from the motor frame and containing gear lubricant.

The pinion is shrunk and keyed on to the motor shaft and the gear wheel is pressed on to the axle. The gear wheel is of the rubber resilient type, allowing a certain amount of torsional resilience between the motor armature and the axle. In the event of a traction-motor failure the pair of motors which includes the defective one may be disconnected by a hand-operated camshaft type grouping switch, enabling the locomotive to be operated with four motors in series or in series-parallel grouping.

Push-Button Switches

The driving position in each cab includes a master controller, air-brake and sanding valves and push-button switches for the remote control of pantograph operating valves and the resetting of tripping relays. The instrument panel is illuminated and includes a speedometer, one motoring ammeter for each pair of traction motors, braking ammeter and duplex air-pressure gauges. Lamps mounted on the panel indicate fault conditions in the operation of the traction-motors, traction-motor blowers and resistance blowers, also the availability of control circuit supply at the appropriate voltage.

Other cab equipment includes the low-voltage circuit breakers and switches for the control and protection of lighting circuits, and a speedometer. Each cab is provided with two 500 watt low voltage convection heaters and a hot plate for food warming.

The master controller includes a control wheel, a reverse lever, and a rheo-

static brake control lever. The control wheel has 36 positions. These select the 30 resistance notches, also full-field running notches for each motor grouping together with intermediate and weak-field notches for use when the motors are in the parallel grouping.

The reverse lever has "forward," "reverse" and "off" positions. In addition, it has control positions to select intermediate and weak-field operation when the traction-motors are in the series or series parallel groupings; these positions are obtainable only when the control wheel is in the "full series" or "full series parallel" notches. Removal of the reverser key can only take place in its "off" position, while the mechanical interlocking ensures that the control wheel and rheostatic brake control lever are then also locked in the "off" position.

The rheostatic brake control lever has eight notches which regulate the braking effort. The brake lever is mechanically interlocked so that it can only be operated when the control wheel is in the "off" position and the reverse lever is set to the appropriate direction of motion. The control equipment for

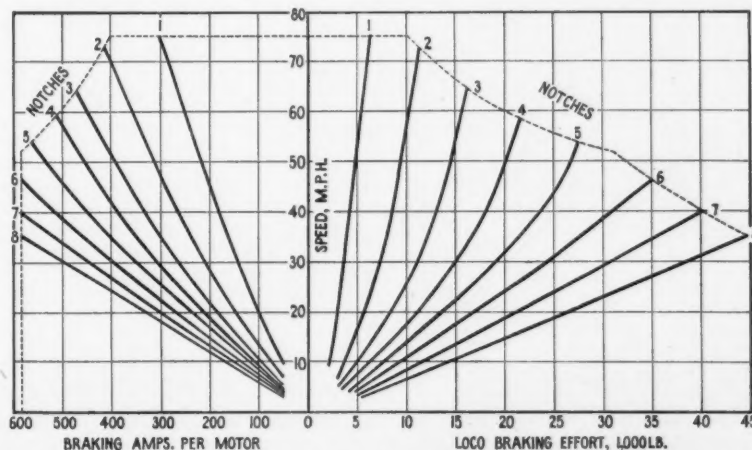
high-voltage apparatus is housed in three control frames mounted in the locomotive superstructure. The entry doors are interlocked with the air supply to the pantograph, such that entry is possible only with the pantograph lowered. The resistors, which serve during both motoring and rheostatic braking operation, are housed in two heat-insulated compartments in the centre of the locomotive superstructure. The resistors are provided with forced ventilation, each resistor compartment being ventilated by three fans which blow air over the resistors and expel it through louvred openings in the locomotive roof.

Each resistor ventilating fan has a capacity of 3,300 cu. ft. at 4 ft. water gauge. The series wound driving-motors for the resistor fans are connected across a section of the resistor; the starting and stopping of the motors and their speed is a function of the load current in the resistors.

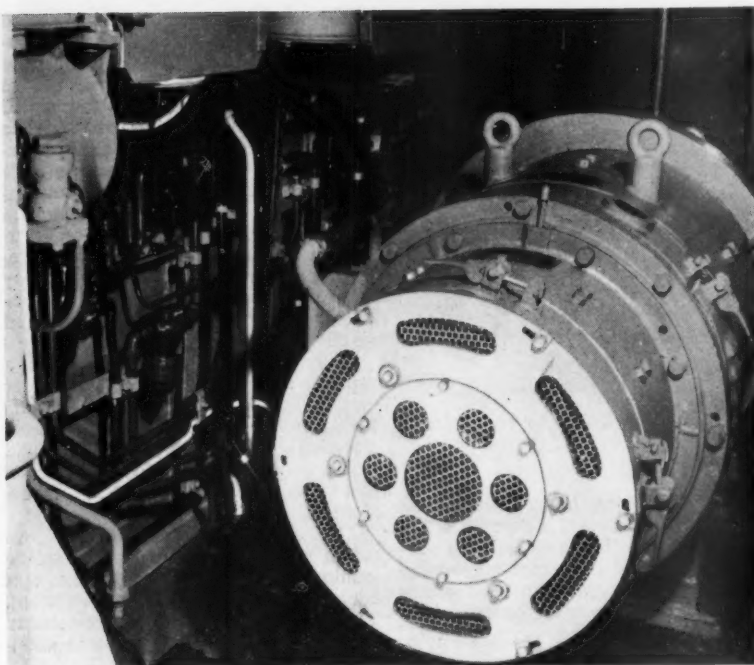
The double-pan pantographs are raised pneumatically against a spring loading system, and design ensures that contact pressure is substantially constant. The balancing mechanism is resilient to accommodate small variations in alignment.

Protection against earth fault or excessive loading during motoring or braking operation is provided by instantaneously tripping relays. The line breakers and one of the resistor contactors are fitted with two magnet valves to provide for "normal" or "high-speed" opening. The high-speed function is selected only by the overload relays, in which condition the line breakers and contactor R16 are sequence controlled to insert a buffer resistance in the fault circuit, so limiting the final current flow to be interrupted.

Each locomotive is fitted with a three-machine motor-generator set comprising a driving motor, constant voltage auxiliary generator and variable voltage exciter. Indicator lamps in the driving cabs are connected across the auxiliary generator, and indicate whether the set is running or not.



Rheostatic braking performance diagram



Three-machine motor generator set. Panel mounted brake valves are shown on the left

The self-excited auxiliary generator supplies current at 115 V. for operation of the control equipment, lighting circuits and auxiliary services. The output voltage of the auxiliary generator is maintained at a constant value, at all normal speeds and loads, by a carbon pile voltage regulator. A six-cell lead acid battery is trickle charged for this supply and provides a 12 V. emergency lighting circuit. The separately excited variable voltage machine of the motor-generator set provides field excitation for the traction motors during rheostatic braking.

The 1,500 V. driving motor obtains its supply from the pantograph through isolating switches, controlled by a hand-operated, loose-handle circuit breaker and an electro-magnetic contactor which shorts out the starting resistance automatically at a predetermined speed. A protective resistance is permanently connected in the positive supply. The circuit breaker for the driving motor trips instantaneously in the event of a short circuit or earth fault and is fitted with an inverse time lag device to deal with sustained overloads.

Forced Ventilation

Forced ventilation for the traction motors is given by two motor-driven blowers. Each blower draws air through viscous filters and delivers it to the traction motors in the adjacent bogie. The blowers are of the centrifugal type and can each deliver 6,000 cu. ft. of air per minute at 4.5 in. water gauge. A small amount of air is bled from each traction-motor blower duct to pressurise

the nose compartment. The 1,500 V. driving motors for the traction-motor blowers receive their supply from the pantograph through isolating switches and protective resistances, controlled by hand-operated, loose-handle circuit breakers with time delay and instantaneous tripping devices. Compressed air for the operation of locomotive and train brakes, sanding valves, pantographs, and electro-pneumatic control gear, is provided by the operation of two motor-driven, two-stage, compressors, one being housed in each nose compartment. Each compressor has a capacity of 75 cu. ft. per min. sufficient to meet normal demands, thereby avoiding immobilisation of a locomotive in the event of failure of one compressor set.

The 1,500 V. compressor motors receive their supply from the pantograph through isolating switches, a protective resistance and a hand-operated loose-handle circuit breaker fitted with time delay and instantaneous tripping devices. The motors are controlled by electro-magnetic contactors, the contactor operating coils being switched on and off by a pneumatic switch set to maintain air pressure between 85 and 100 lb./in.².

Because of the dirty air conditions experienced in the mining areas through which the locomotives will operate, the air pressure in the equipment compartments is maintained at slightly higher than atmospheric by a motor-driven fan which draws air through viscous filters in the side of the locomotive superstructure at cantrail height. This fan

delivers 4,000 cu. ft. of air per minute at 0.6 water gauge. The filter panels are interchangeable with those of the blowers used for forced ventilation of the traction motors. The 115 V. series wound, fan motor is connected directly across the auxiliary generator and is protected by a circuit breaker. The voltage regulator, battery relay and circuit breakers for low-voltage equipment are accommodated in an enclosed cubicle in the locomotive superstructure. The emergency battery is enclosed in a separately ventilated section of this cubicle.

Rheostatic Braking

During rheostatic braking the traction-motor fields are connected in series and the traction-motor armatures in three independent groups, each having two armatures in series. The motor fields are excited from the variable voltage exciter of the three machine motor generator set already referred to and the traction-motor armatures are loaded by current flow through resistors. The rheostatic braking effort is regulated by variation in the field strength of the exciter. The amount of current flow through the traction-motor fields, being a function of the exciter output, determines the strength of braking effort. Interlocking is provided between air and rheostatic braking equipment. Two locomotives coupled and with control wires interconnected may be operated from any driving cab under the control of one driver. In the event of failure of a motor-generator set in one of two locomotives operating in multiple, a low-voltage supply may be taken from the other locomotive, thereby permitting normal operation with the exception of rheostatic braking which would not be available on the locomotive with the defective motor-generator set.

U.S. AID FOR INDIA.—India will receive £9,107,143 additional American economic aid to buy steel for railway and agricultural projects under an agreement signed in New Delhi. It is the second large grant made available from the £31,825,000 allocated to India for the 1954 fiscal year which ends in June.

RECONSTRUCTION OF PONTSARN BRIDGE.—The reconstruction of Pontsarn bridge near Peterston, Glamorgan, carrying the Cardiff-Swansea main line of the Western Region, was carried out on January 17. The work, which entailed closing both up and down lines from 7 a.m. to 6 p.m. on that day, required the rearrangement of train services in the area. All trains between Cardiff and Bridgend were diverted via Barry, and local stations were served by special bus services. Engineering work in connection with the reconstruction of the bridge included the erection of girders whose exceptional length needed the provision of a special freight train on January 15, to convey them from the manufacturers at Chepstow to Cardiff, in readiness for the weekend operations. The load of the train consisted of three girders, each measuring 110 ft. in length, with a total weight of 114 tons, for which special wagons were used.

New Goods Depot at Bury St. Edmunds, Eastern Region

*Modern shed and office accommodation
at an East Anglian freight railhead*



Goods office building, showing goods shed in background on left

THE increased importance of Bury St. Edmunds as a goods handling centre led to a decision in 1951 to remodel the depot by erecting a new goods shed and new offices at a cost of nearly £70,000.

Bury St. Edmunds is a town of some 20,000 inhabitants, situated on a line which connects the two main routes of the Eastern Region between Liverpool Street and Norwich—one via Ipswich and the other via Cambridge and Ely; it runs from Haughley, on the Ipswich-Norwich section, to Ely with a fork from Newmarket to Cambridge. A branch runs southwards from Bury to Long Melford on the Cambridge-Haverhill-Marks Tey line. There is easy access via Ely to Whitemoor Yard and the north and to Peterborough. It is a railhead serving places within a 15-mile radius whose goods traffic was formerly handled at some 13 stations. Concentration of all this traffic at Bury ensures not only arrival of consignments at any point in the area on the day after despatch from London, for example, but also means full-loading and therefore more economical use of wagons. Ten British Railways lorries, supplemented as necessary by British Road Services vehicles, collect and deliver in the surrounding district.

Traffic handled at Bury is varied in character; bulk commodities—not dealt with in the new shed—include sugar beet and pulverised limestone. The limestone arrives by rail from Wirksworth, Derbyshire, in containers which are transferred to lorries and taken to nearby aerodromes where the material is used in building runways.

Traffic Statistics

Some 63 wagons a day are cleared in the shed and yard. The staff includes ten men in the shed and nine outside, and ten motor drivers. Consignments inwards and outwards last year totalled 108,616; 22,378 wagons were received

and 14,563 loaded and despatched. The tonnage handled was 270,517, including some 80,000 tons of coal and coke.

The old buildings besides being inadequate had become costly to maintain. Their replacement also afforded an opportunity for remodelling the goods yard to allow the adoption of the modern "perambulating" system of handling traffic and giving the facility of direct loading of inwards and outwards traffic under cover. There are electric lighting, heating and power throughout the new depot. The adjacent new two-storey office block includes messroom, lockers and lavatories for both the goods handling and cartage staff. The offices are strikingly decorated with a liberal use of bright colours for the inside walls. One room is at present unoccupied, awaiting the introduction of a scheme for centralising at

the Bury office the making out of traders' ledger accounts for an area bounded by Ingatestone, Felstead, Kennett, Diss and Halesworth.

All-Concrete Structure

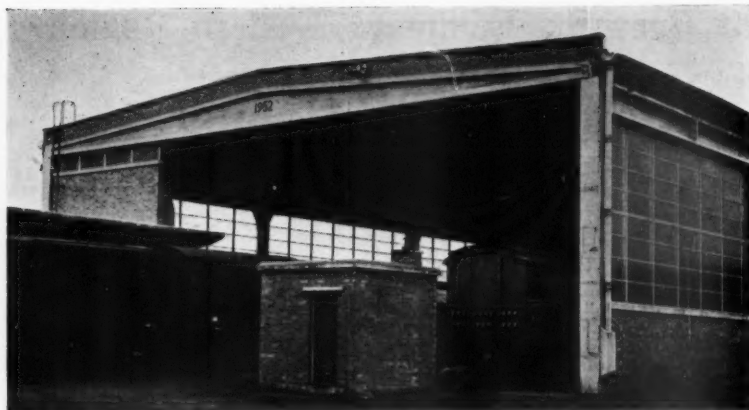
Work on the new shed began in November, 1951. It was decided to adopt all-concrete construction which was found to be rather cheaper than a steel-frame building. The first task was the construction in situ and the placing of the reinforced concrete columns to support the new shed roof; a start was made at the same time on new drainage and the foundations for a new weigh-bridge. In February, 1952, while this work continued, the construction of a casting bed for the 78-ft. 12-ton pre-stressed concrete roof beams began. The first of them was placed in position, using two rail steam cranes, in March, 1952. All other erection, apart from the roof beams, was undertaken by only one steam crane.

One difficult feature was that the work of the depot had to be maintained during construction. The new shed was therefore built in two halves. The first half was brought into use in April, 1952, when goods work was transferred from the old shed, which was demolished. Work on the second half of the new shed began in May, 1952, and was completed in October, 1952. The windows and walls for the whole shed were then placed in position. Construction of the new offices began in November, 1952, and they were completed in November, 1953. The whole of the new depot was brought into full effective use on January 1 last.

The new shed, which measures 200 ft. × 78 ft., more than twice the size of the



Loading bank from road vehicle side



New goods shed, with loading bank track in background. Note window space and height of building

old shed, gives at first the impression of being exceptionally high. The reason for the height fixed for the roof was to

enable container traffic to be handled by crane inside the building. There also seem to be rather more windows than

usual, but, these, besides being cheaper than bricks, have also the advantage of improving working conditions within the shed. There are two railway tracks inside the shed; that on one side is flanked by a 12-ft. loading bench separating the wagons and the waiting lorries. Wagons are moved by means of capstan and rope.

The form of roof construction is the first of its type in this country. Carried out under the direction of Mr. J. I. Campbell, Civil Engineer, Eastern Region, the entire design and stress data were worked out by his staff at Kings Cross. By allowing tensile stresses in the concrete under working load—a principle not acceptable with orthodox methods of pre-stressed concrete construction—roof beams have been reduced in cross-section, area and weight, and overall costs have thereby been lowered.

The main contractors were Charles R. Price, Kingsbury, and the sub-contractors Anglian Building Products Limited, Norwich.

The New Zealand Disaster



Wreckage of the train and bridge concerned in the disaster at Tangiwai, North Island, New Zealand, on Christmas Eve. The express running from Wellington to Auckland fell into the river from the bridge which had been weakened by flood water, and heavy loss of life resulted

RAILWAY NEWS SECTION

PERSONAL

Mr. E. H. Brownbill, who was Deputy Commissioner of the Victorian Railways, Australia, during the absence on sick leave of Mr. A. G. Fletcher, Commissioner for Railways, succeeded Mr. Fletcher when the latter's term of office expired at the end of last December. Mr. Brownbill joined the Department in 1925 as an engineering assistant after graduating from

Nyasaland & Trans-Zambesia Railways, who, after a few months leave in this country will be taking up an appointment as an Assistant Traffic Superintendent, East African Railways & Harbours, was born in 1915 and educated at King's College School, Wimbledon. He joined the Southern Railway in 1934 at Hampton Wick and shortly afterwards was transferred to the General Manager's Office, Waterloo. After further experience gained

ing with the Great Western Railway when he entered the Swindon Works in 1915. Between 1917 and 1919 he served with the Royal Naval Air Service. He returned to Swindon in 1923, after obtaining the Loughborough College Diploma in the Faculty of Mechanical & Civil Engineering. In 1923-24 he commanded the G.W.R. Coy. of the Hants Fortress Royal Engineers Territorial Army. Mr. Innes joined the Bombay, Baroda & Central India Railway



Mr. E. H. Brownbill
Appointed Commissioner for Railways,
Victoria



Mr. R. K. Innes
Appointed Chief Mechanical Engineer,
Nigerian Railways

Melbourne University, where he gained the degree of Master of Mechanical Engineering for a 10,000-word thesis on improvements to locomotives of the Victorian Railways. He is also a Bachelor of Electrical Engineering. Mr. Brownbill, at the age of 35, was appointed Manager of Newport Workshops, and took over at one of the most important periods in their history, that in which Australia's first air-conditioned train "Spirit of Progress" was built. In 1936, at the request of the Tasmanian Government, he re-organised many branches of the Tasmanian Railways. He was appointed Assistant Chief Mechanical Engineer in 1943. After the Government had, in May, 1949, approved the electrification of the Gippsland line between Dandenong and Traralgon, Mr. Brownbill was sent with three other senior officers to South Africa to investigate main-line electrification.

Mr. N. E. Norman, A.M.Inst.T., Assistant (General) General Manager's Office,

in the Commercial and Marine Departments, Mr. Norman was selected as the company's representative on the R.M.S. "Queen Mary." As a member of the Supplementary Reserve of Officers, R.E., Mr. Norman was mobilised on the outbreak of war and served in France, Egypt, Western Desert, Sicily and Italy, attaining the rank of Staff Captain (Mov. and Tn.). After demobilisation Mr. Norman rejoined the Southern Railway until February, 1947, when he was appointed Junior Traffic Officer, Nyasaland and Trans-Zambesia Railways. He was promoted to be Assistant Traffic Officer in 1948, subsequently being appointed General Assistant to Traffic Superintendent in 1950. His appointment as Assistant (General) General Manager's Office, Nyasaland & Trans-Zambesia Railways took place in 1952.

Mr. R. K. Innes, D.L.C., M.I.C.E., M.I.Mech.E., M.I.L.E., who has been appointed Chief Mechanical Engineer, Nigerian Railways, received his early train-

ing as an Assistant Locomotive & Carriage Superintendent in 1924 and became Works Manager, Parel, in the same year. In 1923 he was appointed as the B.B. & C.I. observer to the Pope Enquiry Committee. In September, 1939, he was nominated by the Railway Board to serve on the Staff of the Master General of Ordnance as Chief Industrial Planning officer, to organise surveys and the collation of capacities of the Indian Railway Workshops and civil industry for munitions production and held successively the posts of Assistant Director, Deputy Director and Director Civil Production (General). On rejoining the B.B. & C.I. he was appointed Deputy Locomotive & Carriage Superintendent (Broad Gauge). In 1948 the hitherto distinct broad and metre gauge locomotive and carriage departments were amalgamated and Mr. Innes became Chief Mechanical Engineer, with responsibility for Workshops and Running spheres. In 1932 he was appointed J.P. He retired from the Indian railway service in 1951.

**Brigadier R. Gardiner**

Appointed Representative (Designate) of the
Peruvian Corporation Limited

**Mr. Ranald J. Harvey**

Member of Honour, Permanent Commission,
International Railway Congress

**Mr. C. F. E. Harvey**

Appointed New Works Assistant to Operating
Superintendent, Western Region

Brigadier R. Gardiner, C.B.E., who, as recorded in our January 1 issue, has been appointed Representative (Designate) of the Peruvian Corporation Limited, in succession to Mr. F. F. Hixson, the present holder of the office, was educated at Up-pingham School and the Royal Military Academy, Woolwich. He was commissioned in 1920 into the Royal Artillery and transferred to the Royal Engineers in 1924. He joined the East Indian Railway as an Assistant Executive Engineer in 1927, in which capacity he was engaged upon railway construction and maintenance, including the construction of the Central Indian Coalfield Railway, major bridges and the then new hump yard at Moghalserai. In 1930, Brigadier Gardiner was appointed Secretary to the General Manager, East Indian Railway, and, in 1934, he became Executive Engineer of the same system. His duties were concerned with the reconstruction after the Bihar earthquake. From

1938 to 1940 Brigadier Gardiner filled the position of Government Inspector of Railways, Burma, and, from 1940 to 1941, he saw military service in India and Eritrea with the Indian Railway Construction Company. From 1941 to 1945, he served in the Transportation Directorate, G.H.Q., India, and as Director of Transportation, India Command, during which period he was engaged in organising and training the Indian Transportation Service. From 1945 to 1946 he was Director of Transportation, British Army of the Rhine, and, from 1946 to 1948, he was Commandant of the Transportation Training Centre, R.E. His appointment as Director of Transportation, War Office, took place in 1948, this appointment being combined with that of Commandant at the Transportation Centre at Longmoor. From 1950 to 1953, in which year he retired from the Army, Brigadier Gardiner was Director of Engineer Stores, War Office. On January 9,

1954, he was appointed Representative (Designate) in Peru by the Peruvian Corporation. Brigadier Gardiner receives the honour of C.B. in the New Year's List. He left England to take up his duties in Peru on January 9.

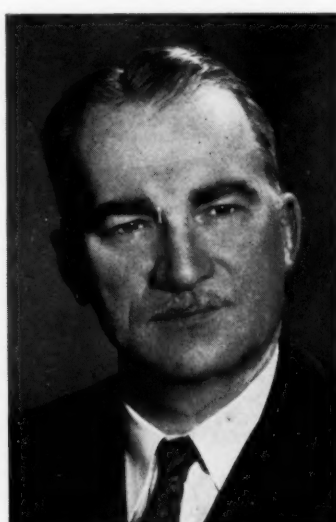
Mr. Ranald J. Harvey, Senior Partner of the firm of Ranald J. Harvey & Partners, consulting engineers, who has been unanimously elected a Member of Honour of the Permanent Commission of the International Railway Congress by the members of the Permanent Commission of the Congress, completed his technical training with Dick Kerr & Co. Ltd. He spent some years in South America as Chief Engineer & Manager of a group comprising a railway, harbour, and a hydro-electric generating station, and, after returning to England, he joined Sir Duncan Elliott, Consulting Engineer, whose practice included the New Zealand Government.

**Mr. A. F. Luckett**

Appointed District Estate Surveyor,
Retford, Eastern Region

**Mr. F. J. Fryer**

Appointed Assistant General Superintendent
of Transportation, C.P.R.

**Mr. J. E. Belanger**

Appointed Deputy Chief, Department of
Investigation, C.P.R.

On Sir Duncan's retirement in 1922, Mr. Randal Harvey was appointed Consulting Engineer to the New Zealand Government, and, in this capacity, he represented the New Zealand Government Railways on the Permanent Commission of the International Railway Congress Association, of which he was a very active member. He attended all their Congress Meetings in the capitals of various countries, including Madrid, Paris, Cairo, London, Lucerne, Lisbon, Rome, Stockholm, and it was at Lucerne in 1947 he acted as Reporter to the Electric Traction Section. In addition to the railways in that country, Mr. Randal Harvey has been connected with major engineering projects carried out by the New Zealand Government, and has clients in different parts of Australia, where he is engaged on several important schemes. He also has traction interests in India, and other parts of the world.

Mr. C. F. E. Harvey, District Traffic Manager, Plymouth, Western Region, British Railways, who has been appointed New Works Assistant to the Operating Superintendent, Western Region, joined the Great Western Railway in 1923. After experience in the London Division and elsewhere, he was attached to the staff of the Superintendent of the Line until 1929, when he was appointed Junior Assistant to the Divisional Superintendent at Cardiff. In 1932 he was transferred to a similar post at Birmingham, and, in 1935, he became Chief Clerk to the Plymouth District Traffic Manager. From 1937 he was Assistant & Chief Clerk to the Divisional Superintendent, Exeter, until the outbreak of war in 1939. As a Captain in the R.E. Supplementary Reserve Mr. Harvey was called to the Forces and served in various places overseas with No. 6 Railway Operating Group, being promoted Lieutenant-Colonel in 1942, and was subsequently mentioned in dispatches. On returning to the Great Western service in 1945, Mr. Harvey took up the post of Assistant Divisional Superintendent, Birmingham, and was appointed Divisional Superintendent, Worcester, in 1947. He went to Plymouth as District Traffic Manager in 1950, which post he vacates to take up his present appointment.

Mr. A. F. Luckett, District Estate Surveyor, Peterborough, Eastern Region, British Railways, who has been appointed District Estate Surveyor, Retford, with effect from December 24, 1953, entered the service of the London & North Eastern Railway in 1934 as a pupil in the Estate & Rating Surveyor's Department, Liverpool Street. After being elected an Associate of the Royal Institution of Chartered Surveyors in 1938, he became a Technical Assistant. He joined H.M. Forces in June, 1940, and served with the Royal Engineers until 1946, being demobilised with the rank of Captain. On resuming duty, he was transferred to the District Estate Surveyor's Office, Nottingham, as Assistant Surveyor. He returned to Liverpool Street in 1948 and, in February, 1950, he was appointed District Estate Surveyor, Peterborough.

Mr. F. J. Fryer, who has been appointed Assistant General Superintendent of Transportation for the Canadian Pacific Railway at Montreal headquarters, has 37 years of railway operating experience. He joined the C.P.R. at the age of 16 as a call boy at Medicine Hat, Alta., in 1916, where he worked as a checker and train clerk. In 1920 Mr. Fryer became an operator, and worked at various points on the division until 1932, when he became Train Dis-

patcher at Medicine Hat. A year later he moved to Lethbridge, Alta., in the same capacity, returning to Medicine Hat in 1937. Mr. Fryer was appointed Assistant Superintendent at Edmonton in 1941, and, in 1943, he moved to Winnipeg as Inspector of Transportation. He went to Regina as Divisional Superintendent in 1944, and, in 1948, he returned to Winnipeg as Superintendent of the Portage Division. In June last year, Mr. Fryer was assigned to special duties for the Vice-President of the Prairie Region, who makes his headquarters at Winnipeg.

Mr. Jean E. Belanger, Assistant Chief, Department of Investigation, Canadian Pacific Railway, who has been appointed Deputy Chief, Department of Investigation as from January 1, began his railway police career as a constable at Montreal in 1923. He was largely responsible for the brilliant police work which actually broke the now-famous "Guay Case," in which a Canadian Pacific airliner was dynamited out of the sky north-east of Quebec City in 1949, killing the 23 persons aboard. At that time he was Chief Inspector of the railway's police force in the Quebec district. His work with the C.P.R. has included accompanying many famous personages while they were on company property, among these being the late King of Siam, who visited Canada in the early 1930's, the late President Roosevelt of the United States on a visit to Quebec and former President Truman, who visited the Seigniory Club just after the 1939-45 war. Following work as a constable in Montreal and Quebec, Mr. Belanger was appointed Investigator in Montreal in 1927, and, in 1944, he was appointed Inspector at Montreal. He became Assistant Chief of the department in May, 1952.

A memorial service for the late Mr. John Coleridge Patteson, C.M.G., European General Manager of the Canadian Pacific Railway, will be held today (Friday), January 22, at St. Margaret's, Westminster.

THE LATE J. C. PATESON—AN APPRECIATION

By the passing of J. C. Patteson, the realm of transport, in Britain and Canada, has lost a dynamic personality, and one it could ill afford to lose at this time. To Jack Patteson nothing but the best was good enough; this was seen in his private life and in his business activities. I think his work in the last war exemplified this characteristic.

Called to the Ministry of Supply at the end of 1940 to become Controller-General of Transportation, he gathered around him a little band of transport experts, who, as his Controllers, were proud to serve him. He gave them difficult tasks but he trusted, encouraged and supported them at all times. Later the scope of his responsibilities was enlarged considerably, and the C.G.T. became the D.G.S.S. (Director-General of Supply Services) when he was in constant contact with Ministers and other holders of high office, who quickly came to appreciate his worth and seek his aid or counsel.

A big man in every way—physically, mentally and socially—he worked hard, although he knew how to relax. With all his great charm of manner, he stood always solid as a rock on his principles and beliefs. He will be remembered and admired for many a long day by his associates and those who were fortunate enough to know him.—F. G.

Mr. John F. Davison, Engineer of the Southern Ontario District Committee on Terminal Performance, has been appointed

Assistant to the System Chief Engineer of the Canadian National Railways.

E.A.R. & H. STAFF CHANGES

The following staff changes are announced by East African Railways & Harbours:—

Mr. J. M. Kesson, Construction Engineer (Harbour Development), has been appointed Assistant Chief Engineer (Administration).

Mr. P. H. Hicks, Resident Engineer in charge of the survey for the Western Uganda Railway Extension from Kampala to the Congo, has been appointed Construction Engineer of the system.

Both these appointments take effect from August, 1953.

Mr. H. C. Murrell, who has been in charge of the Nairobi Engineering District, becomes Senior District Engineer, East African Railways & Harbours.

Mr. T. W. Eydes, Acting Works Engineer, Headquarters, Nairobi, has been appointed Senior District Engineer of the system.

The following have been appointed District Engineers:—

Mr. L. G. Dormon, Assistant Engineer; Mr. G. Wallwork, Assistant to the Construction Engineer, Nairobi; Mr. A. F. Lucarotti, Acting Senior District Engineer; Mr. W. B. Canning, formerly in charge of the Tabora Engineering District; Mr. J. M. Fogarty, Resident Engineer, Southern Province Railway.

Mr. F. W. Tovee, Assistant Stores Superintendent, has retired.

Mr. H. B. Marshall, Chief Mechanical Engineer's Department, Tanganyika Section, has been appointed Senior Mechanical Engineer (Motive Power).

Mr. Hans Baumann, ingénieur, Chief (Working) Zurich Division, Swiss Federal Railways, has retired. He has been succeeded by Mr. Hans Ritt, Assistant to Mr. Baumann since 1950.

Mr. W. J. Kelland, Deputy Head of Section (Rules), Office of Superintendent of Operation, Waterloo, Southern Region, British Railways, has been appointed Assistant for Rules & Regulations, Office of Superintendent of Operation, Waterloo, with effect from January 8, 1954.

The following staff changes are announced by British Railways, London Midland Region:—

Mr. I. M. Loder, Acting Assistant District Operating Superintendent, Rugby, to be Assistant District Operating Superintendent, Rugby.

Mr. J. A. K. Gray, Acting Assistant District Operating Superintendent, Nottingham, to be Assistant District Operating Superintendent, Nottingham.

Mr. J. W. Ruse, Head of Section, Derby D.C.S.O., to be Goods Agent, Blackpool.

Mr. E. Steele, Assistant to District Goods Superintendent, Bolton, to be Goods Agent, Birkenhead.

Mr. C. W. Dyson, Stationmaster, Dagenham (Heathway), Eastern Region, to be Stationmaster/Goods Agent, Wembley Central.

Mr. W. H. Fisher, Goods Agent, St. Albans, to be Goods Agent, Watford.

Dr. A. H. Leckie, B.Sc., F.R.I.C., A.M.I.Chem.E., M.Inst.F., head of the Steelmaking Division of the British Iron & Steel Research Association, has been appointed Technical Officer with the Iron & Steel Board. He has been temporarily succeeded as head of the Steelmaking Division by Dr. J. Pearson, M.Sc., F.R.I.C., head of the Chemistry Department. Mr.

D. Luther Phillips, M.Sc., F.R.I.C., F.I.M., head of the South Wales laboratories, retires on February 10 and will be succeeded by Mr. S. S. Carlisle, M.Sc., A.M.I.E.E.

The following is an extract from the Supplement dated January 15, 1954, to *The London Gazette* of January 12, 1954:—

Regular Army

The undermentioned to be Brigadiers:—
Colonel (Temporary Brigadier) C. E. M. Herbert, C.B.E. (27922), late R.E.

Colonel (Temporary Major-General)
A. T. de Rhe Philipe, C.B., O.B.E. (34389), late R.E.

RAILWAY BRAKES & SIGNALS INDUSTRIAL & EXPORT GROUP

The Railway Brakes & Signals Industrial & Export Group held its annual dinner on Friday, January 15, at the Great Northern Hotel, Kings Cross, following a meeting in the afternoon. Those present included:

Messrs. F. L. Castle (Chairman), Siemens & General Electric Railway Signal Co. Ltd.; J. Griffith Hall (Secretary), and M. W. Shorter, both of Westinghouse Brake & Signal Co. Ltd.; Colonel H. Gresham (Deputy Chairman), and Mr. J. Neville Gresham, both of the Vacuum Brake Company and Gresham & Craven Limited; Messrs. F. Edwards and F. G. Mitchell, both of Siemens & General Electric Railway Signal Co. Ltd.; J. C. Kubale and H. F. Pearce, both of Metropolitan-Vickers G.R.S. Limited; J. E. Blackshaw and G. H. Negus, both of Consolidated Brake & Engineering Co. Ltd.; L. Ollerenshaw, Railway Signal Co. Ltd.; T. S. Lascelles, F. J. Sykes and E. Turner, all of W. R. Sykes Interlocking Signal Co. Ltd.; D. S. Bennett and W. R. Clemens, both of Tyer & Co. Ltd.; J. Hurst Hodgson, Henry Williams Limited; C. F. Minett and D. H. Minett, both of Lamp Manufacturing & Railway Supplies Limited; A. J. Fedden, Linley Engineering Co. Ltd.

Mr. W. L. James, Chairman & Managing Director of Pegson Limited, has been elected Chairman of Mellor Bromley & Co. Ltd., Leicester textile machine builders.

We regret to record the death on January 5, at the age of 59, of Mr. H. R. Backhouse, O.B.E., Chairman & Managing Director of Mellor Bromley & Co. Ltd. and of Member Companies of the Mellor Bromley Group, one of the most prominent members of which is Pegson Limited.

Mr. J. D. Lewis, a Director of the Atlas Engineering Company, will leave this country by air on January 31 for Cairo, the first stage in a business tour of Africa. Mr. Lewis, whose itinerary includes Egypt and the Sudan, East, West, Central and Southern Africa, returns to London on March 18.

We regret to record the death on January 13, of Mr. J. B. Woodman, London Manager of Geo. Turton Platts & Co. Ltd. Mr. Woodman had served the company for over 30 years. The funeral took place at Langleybury, near Watford, on January 16.

The following appointments to the board and executive staff changes have been announced by the Rover Co. Ltd.:—

Mr. L. G. T. Farmer, Commercial Director & Secretary, is appointed Assistant Managing Director; Mr. Allan Botwood, formerly Managing Director of Harry Ferguson Limited, has been elected to the board as Sales Director; Mr. E. G. Commander, who is resigning his position as Chief Buyer after 58 years' service, has been appointed to the board. Mr. C. Smith, Assistant Secretary, becomes Secre-

tary; Mr. A. O. Hollick, who on medical advice is restricting the scope of his future activities, is appointed Personal Assistant to the Sales Director; Mr. G. Lloyd Dixon, who recently resigned from the board of Humber Limited, is appointed Chief Sales Manager; and Mr. A. B. Smith, Assistant Buyer, becomes Chief Buyer.

We regret to record the death on December 31, at the age of 62, of Mr. L. B. Cooper, Works Manager, Dorman, Long & Co. Ltd.

The United Steel Companies Limited announce that the following appointments have been made at the branches listed below:—

Appleby-Frodingham Steel Company, Scunthorpe

On January 1, 1954:—

Mr. E. F. Farrington, Senior Civil Engineer, Maintenance, becomes Assistant to the Chief Engineer for duties in connection with capital expenditure schemes and developments. He is succeeded as Senior Civil Engineer, Maintenance, by Mr. R. B. Atkin, Assistant Civil Engineer.

On April 1, 1954:—

Mr. K. Paterson, Director & Chief Engineer of the company, will take up the appointment of General Manager of the United Steel Structural Company, of which company Mr. H. Saunders will be Commercial Manager & Director.

Mr. L. Gaskell, Chief Electrical Engineer, will become Chief Engineer to succeed Mr. Paterson.

Mr. W. E. Smith will become Chief Electrical Engineer.

Mr. D. R. M. Nisbet will be Deputy Chief Electrical Engineer.

Samuel Fox & Company Limited, Stocksbridge

On January 1, 1954:—

Mr. H. P. Forder, Assistant General Manager (Commercial & Administration) becomes Deputy General Manager.

Mr. R. J. Bavister, Assistant Commercial Manager, becomes Commercial Manager.

Mr. J. H. Goodlad will deputise for Mr. Bavister as required.

Mr. A. Grayson, at present Buyer, is appointed Supplies Manager.

Mr. J. Mason, Assistant to Mr. Grayson, is appointed Buyer.

Mr. G. J. Cummings becomes Education Officer.

Workington Iron & Steel Company, Workington

On January 4, 1954:—

Mr. V. Smith becomes Development Engineer.

Following the retirement of Mr. W. Marter Furniss, the board of the Electric Construction Co. Ltd., has elected Mr. Charles Reid as Chairman, and Mr. William Marter Burne Furniss has been appointed Managing Director of the company.

INSTITUTION OF CIVIL ENGINEERS

The following have become Members of the Institution:—

Messrs. B. G. Drummond, B.A.(Cantab.), Grad.I.C.E., Ministry of Transport; J. D. Geddes, B.Sc.(Durham), Stud.I.C.E., Executive Engineer, H.Q., Road Laboratory, P.W.D., Lagos, Nigeria; J. C. Lawrence, P.W.D., Accra, Gold Coast, B.W. Africa; J. P. Walker, P.W.D., Lusaka, N. Rhodesia.

The following has become a Graduate of the Institution:—

Mr. M. M. F. El Mula, Stud.I.C.E., Sudan Railways Engineering Department, Atbara, Sudan.

The following has become a Student of the Institution:—

Mr. M. J. Pierce, Sir Alexander Gibb & Partners (Africa), Nairobi, Kenya Colony.

Mr. J. E. Sunderland, a Director of Enfield Cables Limited since 1951, has been appointed Director & General Manager of the company as from January 1 of this year. From the same date Mr. M. J. Smith, O.B.E., A.M.I.E.E., has been appointed Technical Director of the company.

Imaginative Planning in Transport

Mr. John Elliot, President of the Institute of Transport and Chairman of the London Transport Executive, addressing the North Western Section of the Institute on January 19, said that even if, in the coming year, Parliament from time to time occupied itself with transport, those in transport must forget politics and concentrate firmly on their job of providing an essential service for a community struggling hard for a high standard of living in a fiercely competitive world.

In the prevailing tendency towards larger operating units there were, he said, besides the great advantages to be won from standardisation and unification, grave dangers also.

The worst of these was timid thinking at the top, too much caution in a changing world, too much faith in committees, too little in bold imaginative plans, too much "leaving it to solve itself." There was no great transport achievement but owed its very existence to the vision, energy, courage, and competence of one or two gifted individuals.

Call for Pioneers

Let their young men entering transport read again the stories of Brunel and Stephenson; of Daimler and Benz, Lancaster and Parsons; of the Wright brothers, Lindbergh, and Whittle; of Stirling, Stroudley, and Churchward. Thos. Cook and Thos. Tilling, Herbert Walker, Albert Stanley, Frank Pick, Sydney Garcke, Spurrier and Henry Royce, Henry Ford and W. R. Morris.

No one could seriously believe, he went on, that the London & Birmingham (the forerunner of the London & North Western) or Great Western Railways, the Rolls-Royce car, the jet, the Southern electrification or London Underground owed their birth to a system of committees in solemn conclave, or were conceived by agendas and nourished on minutes and memoranda. It was in the idea that leapt across time, the right idea, in the burning impulse "to do it better" that great things had their beginnings. It is then that the hard work of committees and men of goodwill came into play, so that in time these things came to fruition.

Electrification and Dieselisation

To bring the transport of this country to the level required of it in future, they must electrify and dieselise a large part of the railways, press on with the development of the lighter train, lorry and bus, harness the new techniques of research, particularly in metallurgy, improve and build new roads and streets, develop helicopter services, and link road and rail services to give faster and easier transits for freight than anything yet envisaged.

"We in transport must raise our sights," Mr. Elliot concluded. They must once again see visions and dream dreams, and forge them to reality, to be worthy of their traditions and of the great future ahead.

Institution of Railway Signal Engineers

*Paper and discussion on
signal box design and layout*

On December 17, 1953, at a meeting in London of the Institution of Railway Signal Engineers, with the President, Mr. T. Austin, in the chair, Mr. F. Horler read a paper on "The Layout of Signal Cabins." The paper was discussed in an editorial article last week.

Mr. J. H. Fraser thought that the use of quarry tiles for the floors of signal cabins would be ideal from the point of view of not creating dust. He considered the question of the size and position of the windows important, particularly in a modern cabin with a panel illuminated diagram; if the windows were too large, the light detracted from the effectiveness of the diagram. He suggested that if, when designing signal cabins, it was possible for the terminal panel for the signal cabin wiring to be related to the lever frame, the wiring of the new frame could be preformed in the locking shop, tested, taken to the signal cabin and installed straightaway, which would save a good deal of time on the actual changeover.

Mr. J. E. Mott, referring to the ventilation of battery rooms containing open type cells, said that he had seen in North America installations where sealed type cells were in the same room as signal equipment relays and the like. That would perhaps be considered undesirable, but he would be interested to hear other views. Was it desirable to give any special protection to the nickel iron cell? As to fire protection, he mentioned the South African Railways practice of segregating all their incoming cables and cable terminals from the relay room. He suggested that designers of new signal cabins should make some provision for alterations and extensions to avoid the cramped conditions in many undersized cabins today.

Mr. E. G. Brentnall said that with signal boxes constructed solely or partially of timber, it was a good point to support the lever frame entirely separately from the structure, as this would be found to be beneficial in the case of fire. It was very desirable, in mechanical signal boxes, that the signalman had a clear view of the line, so that nothing was overlooked. With pivoted windows to facilitate cleaning, care should be taken to avoid any reflection from the window being mistaken for a signal by drivers. The London Midland Region had recently built some boxes where the pivoted windows were kept except when cleaning was necessary.

Mr. C. F. Challis stated that the concrete floor was standard in the Southern Region, but a dustproof treatment was employed and nearly all the floors had coverings; they did not experience dust in their modern signal boxes. He considered that only one form of heating should be used in modern signal boxes—central heating. Referring to window reflections, he thought that use was made of an acid etched glass for illuminated diagrams, which cut out the reflection at least.

Protection of Outside Equipment

Mr. P. A. Langley said that the outward appearance of the signal box might be the architect's concern, but a close check should be kept on his design by the signal engineer to ensure that adequate protection was given to signalling equipment outside the box. The height of the working floor above rail level should be at least 10 ft. to enable the signalman to see the tail lamp of a train on a remote line whilst

there was a train standing on the nearest line. In addition to the items mentioned in the paper, he suggested the provision of accommodation for public address equipment and possibly a separate annexe for the announcer; coal and ash pans for signal boxes in outlying districts where the cost of central heating was not justified; and a lamp room where semaphore oil-lit signals were employed.

Air Conditioning of Relay Rooms

Mr. A. Moss was entirely in favour of consideration being given to air conditioning of relay rooms, which would greatly assist in maintaining correct operation of the intricate equipment. Referring to Mr. Horler's statement that "blind" signal boxes were feasible if an adequate illuminated track diagram was provided, Mr. Moss did not think that the operating department would agree, as it was desirable that the signalman should be able to see all the traffic that was being run.

Mr. B. F. Wagenrieder was also in favour of the signalman being able to see the passing traffic. He noticed that nothing had been mentioned about the standardisa-

tion of signal boxes, a subject which was very much to the forefront just before he left railway working, as it was thought that it would save expenditure.

A written comment forwarded by Mr. F. W. Young was read. On relay and battery room, Mr. Young mentioned that no reference had been made to the requirements at boxes where there was insufficient apparatus to warrant expenditure on separate buildings. In such circumstances, provision had to be made for battery accommodation on the ground floor of the box. Where the number of relays was limited, they could be accommodated in specially designed cupboards on the ground floor of the signal box or on the operating floor. If the latter, care must be taken that the signalman's movements were not impeded or his view restricted.

The continued use of coal burning stoves in the smaller signal boxes, he said, seemed likely on account of economy, but the modern type of stove, with reasonable regulation, would probably overcome difficulties experienced in the past. Apart from the question of cost, there appeared to be one particular advantage in the use of outdoor steps; they gave ready access for train crews and other staff who might need to enter a signal cabin hurriedly.

After Mr. Horler had replied to the discussion, the President proposed a cordial vote of thanks to him for his excellent paper.

Future Operations of British Road Services

*Announcement by British Transport Commission
of reorganisation under the Transport Act, 1953*

The British Transport Commission announces that the road haulage fleet which, subject to the consent of the Minister of Transport & Civil Aviation, will be retained by British Road Services, will be operated in three main sections as follows: (a) General haulage vehicles primarily engaged on trunk and regular services which, in their red livery, are familiar to the public; (b) specialised vehicles engaged on furniture removals, the carriage of liquids in bulk tanks and the carriage of abnormal-indivisible loads; these will be operated in the name "Pickfords"; and (c) vehicles provided under period contract for the exclusive use of traders, and painted in their livery and designed to meet their special needs.

In these directions, it is stated, British Road Services is confident that it will be able to justify the continued support of trade and industry by the quality of its service and the reasonableness of its charges, in free competition with private operators, as intended by the Transport Act, 1953.

Parcels Services

In view of the limitations imposed by the Act the Commission cannot also retain the national network of parcels and "small" services at present operated by British Road Services. The Commission points out, however, that it appreciates the damage that would be caused if the present network were disrupted and is therefore discussing with the Disposal Board the extent to which the provision for the creation of companies under Section 5 of the Act can be used to avoid disruption.

Contract-Hire Vehicles

About 3,000 vehicles in the present fleet of British Road Services are under period

contract to traders and only a small proportion can be retained under Section 4 of the Act. As to the remainder, which are subject to the disposals provisions of the Act, the Commission is anxious to give full recognition to its contractual obligations. British Road Services will discuss the position individually with its contract customers with a view to an acceptable solution. It cannot compel, nor, it is stated, will it seek to compel, a customer to whom it is bound by contract to accept, against his will, a new contractor.

Avoidance of Disturbance

British Road Services, it is announced, will do all in its power to see that disposals cause the minimum of inconvenience to traders, as is its statutory duty. Where, for instance, a user has been accustomed to placing all his orders with a particular B.R.S. depot, British Road Services will, if the user so requires, accept his orders as heretofore and make arrangements for the conveyance of his traffic.

Future of B.R.S. Staff

The statement reminds all British Road Services staff that every effort will be made to minimise hardship and inconvenience, and that close and continuous consultation to that end is being maintained with the trade unions and other bodies concerned.

The Road Haulage Association has stated that the B.T.C. announcement may have the unfortunate effect of creating an unnecessary atmosphere of uncertainty in the minds of traders. The announcement, the Association points out, has no regard to "the justifiable expectation of every purchaser of road haulage assets from the Commission that he will be allowed to carry the traffic for the customers who normally used the vehicles purchased."

Existing independent road hauliers and those coming back into the industry, the Association adds, will be only too ready to meet the requirements of trade and industry with specialist and personal service.

Vehicles Retained Under 1953 Act

The numbers of British Road Services vehicles to be disposed of and retained under the Transport Act, 1953, are understood to be as follows:

Type of vehicle	Number owned	Numbers to be	
		Retained	Disposed
Trunk, regular and other long-distance ...	20,020	2,350	17,670
Short-distance and other general haulage ...	7,000	—	7,000
Parcels ...	4,000	—	4,000
Abnormal-indivisible loads ...	404	249	155
Furniture ...	782	473	309
Meat ...	576	—	576
Contract-hire ...	2,950	272	2,678
Tankers ...	268	215	53
	36,000	3,559	32,441

Rolling Stock for Manchester-Glossop Electric Services

Successful preliminary trial runs took place recently with the first units of multiple-unit stock for the Manchester London Road-Glossop electric services that will be introduced when the next stage of the British Railways Manchester-Sheffield-Wath electrification scheme comes into operation in mid-1954. Eight three-car trains, each consisting of a motor coach, trailer and driving trailer, are being provided for the Manchester-Glossop route. The electrical equipment has been supplied by the General Electric Co. Ltd., and the vehicles were built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

Each motor coach is powered by four G.E.C. axle-hung, nose suspended, self-ventilated traction motors with 1-hour ratings of 185 h.p. on full field and 210 h.p. on weak field. The system voltage is 1,500 V. d.c., and the motors are connected in series pairs, with control by series or parallel connection of the two pairs in a motor coach. The electro-pneumatic contactor control equipment is underframe-mounted, and the whole of the electrical equipment has been designed for satisfactory operation over the fairly wide range of line voltage that may be encountered.

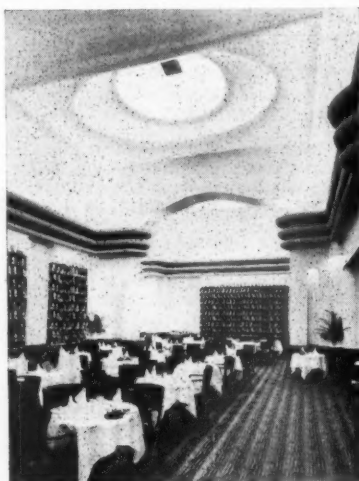
The motor coaches each seat 52 third class passengers, the trailers 24 first and 38 third, and the driving trailers 60 third. Thus the three-car trains will accommodate 174 seated passengers and the six-car trains twice that number. The coach bodies are of all-steel construction, each being fitted with two pairs of electro-pneumatically operated sliding doors with permissive passenger control. The interiors are lined with birch and sycamore veneered plywood, in natural white wood finish, the ceilings and spandrels being painted cream. The large windows are framed in dark teak. The seats are covered in moquette, blue in the smoking sections and russet elsewhere. Metal screens by the doorways are fitted with $\frac{1}{4}$ -in. armour plate glass panels. Heating is effected by means of 400-W. heaters mounted beneath the seats.

Both sides of the triangular junction of the Glossop branch with the main line have been electrified and the trial runs have been made between Godley Junction and Glossop both direct and via Hadfield, with trains composed of one and two three-coach units.

Indirect Lighting in Hotel Modernisation

Cold cathode indirect fluorescent lighting installed in the restaurant and grill room of the Great Western Royal Hotel, Paddington is the first major application of this system in an hotel of British Transport Hotels & Catering Services. The equipment was supplied by the General Electric Co. Ltd.

In the restaurant, 1,618 ft. of ivory and gold Osram tubing replaces a tungsten



Cold cathode indirect fluorescent lighting in restaurant of Great Western Royal Hotel, Paddington

installation of more than 2,000 lamps. The two colours of tubing were chosen to give a blended light.

The restaurant ceiling has three large domes, one small dome, and one half-dome butting in to the mirrored end wall of the restaurant.

All the domes have twin cornices each of which houses one line of gold 20 mm. tubing operating at 60 mA. and one line of ivory white 20 mm. tubing operating at 120 mA. A total of 180 ft. of tubing is employed in each large dome, 104 ft. in the small dome, and 110 ft. in the half dome.

Around the walls of the restaurant is a triple cove. The top section houses four lines of tubing, two gold and two ivory white. Each line is separately switched to enable the staff to control the light intensity. The total loading in the restaurant is 13 kW. Installation was carried out by the City and Central Electrical Co. Ltd.

European Railways Information Centre

The report for the 1952-53 financial year of the Information Centre of the European Railways (C.I.C.E.) has been published recently. During the year the Saar Railways and the Berne-Lotchsberg-Simplon Railway became members of C.I.C.E., making a total membership of 22 railway administrations from 19 countries. Thirty-six thousand copies of the third edition of its booklet "Through all Europe by Train" were circulated to travel agencies in U.S.A. and Canada, and 14,000 copies of the complementary booklet in French ("A travers l'Europe par le train") received a wide

distribution in Europe. These publications were additional to the regular distribution of the C.I.C.E. *Information Bulletin*.

An event of the year was the organisation of an international poster competition. Five hundred-and-one entries were received from 16 European countries and the U.S.A., which resulted in widespread publicity. Twenty thousand copies of the winning poster have been printed for display, with the caption printed in 11 languages. For the first time since its inauguration in 1951, the C.I.C.E. was able to obtain valuable radio publicity. In May, 1953, all stations of the German radio network (South-West Region) gave a running commentary on the journey of the "Scandinavia-Italy Express" from Stockholm to Rome.

Besides arranging for stands at trade fairs as those held at Frankfurt, Brussels, Milan, Utrecht, Barcelona, Stockholm, and Paris, the C.I.C.E. was represented at the Munich Transport Exhibition and at the A.S.T.A. (American Society of Travel Agents) Congresses held at Miami in 1952 and at Rome in 1953.

The report states that member administrations are becoming increasingly aware of the importance of the Centre, and that this active co-operation of a large number of European railways is a modest contribution towards European unity.

Staff & Labour Matters

Railway Wage Claim

The interim wages settlement reached before Christmas between the B.T.C. and the three railway trade unions provided that the Commission would examine with the trade unions the whole wages and salaries structure of British Railways with a view to correcting anomalies and giving added incentives, including differentials, in desirable cases. Provision was also made for all standard rates of pay to be investigated, and there was agreement that at the same time the Commission and the trade unions would confer in order to evolve ways of increasing the efficiency of the Railway organisation, not only by adjustments of salaries and wages but by all other appropriate means.

The Commission gave an assurance that, irrespective of other results emerging from the examination, within two months from the operative date of Railway Staff National Tribunal Decision No. 15 there would be a further improvement on a percentage basis of the standard rates of pay in operation before that award. Arrangements were subsequently made for the Tribunal's decision to be made effective from December 6, 1953.

Discussions with the trade unions on the wages and salaries structure commenced immediately before Christmas and further talks were arranged to take place on January 21 between the Commission and the three railway unions.

Electricians' Wage Dispute

In continuation of the dispute between electricians and the National Federated Electrical Association about wages, electricians in various parts of the country staged a 24-hr. national token strike in answer to a call by the Electrical Trades Union. Reprisals were threatened by the employers who said that men striking on Monday would be locked out the following day, which was done in a number of cases. The union replied with a series of guerrilla strikes on Wednesday. The Minister of Labour has been notified of the dispute by the N.F.E.A., but so far the Minister has

not referred the dispute to the Industrial Disputes Tribunal.

More Pay for London Busmen

The London Transport Executive and the Transport & General Workers' Union announced on January 19 that agreement had been reached for an increase of 7s. a week in the rates of pay of the operating and maintenance staff of the road passenger services. It was further agreed that a lump sum of 21s. should be paid instead of retrospective payment for the first three weeks of January.

The settlement is stated to affect some 58,000 workers, including maintenance staff, and is estimated to cost London Transport about £1,200,000 a year.

Contracts & Tenders

Montreal Locomotive Works Limited has received an order to supply 50 steam locomotive boilers to the Indian Railways, under the Colombo Plan.

The North British Locomotive Co. Ltd., has received an order for two 4-8-2 locomotives for the Sudan Railways. This is additional to the order for 20 of this type which is being executed.

The Netherlands Railways have placed orders with Werkspoor N.V. and J. J. Beijnes N.V. for 46 second class coaches, 114 third class coaches and 26 third class coaches with kitchen and luggage compartment. The stock, which will have centre gangways, will be all-steel and will be used on electrically-hauled long-distance trains.

British Railways, Eastern Region, have placed the undermentioned contracts:—

Charles R. Price, Doncaster: construction of new overhead line maintenance depot at Penistone

T. Gill & Son (Norwich) Limited, Norwich: construction of staff accommodation in passenger yard at Norwich Thrope

British Railways, North Eastern Region, have placed the following contracts:—

Aerocem Limited, S.W.10; one Aerocem Unit, District Engineer's Shops, Stanningley

E. Davis (Fixers) Limited, York: reglazing of lift shop roof at York Carriage Works

Leonard Fairclough Limited, Adlington, Lancs.: reinforced concrete foundation and drainage, Market Weighton

John Pickles & Son (Engrs.) Ltd., Hebden Bridge: mortising and boring machine, Hull, Springhead Wagon Shops

Tenders are invited by the High Commissioner for India for carriage and wagon wheels and axles. Full details are given under Official Notices on page 111.

The British Embassy at Bangkok has notified the Board of Trade, Export Services Branch, of a call for tenders issued by the State Railways of Thailand for:—

Nine diesel-hydraulic locomotives capable of hauling a trailing load of 250 metric tons at a speed of 50 km./h. on a straight and level track. The locomotives are to be fitted with a cab at each end

Five diesel-hydraulic railcars capable of hauling two trailers with a total weight of 30 metric tons at a service speed of 50 km./h. on a straight and level track

The locomotives and railcars will operate on metre-gauge track of 40 lb. rails with a maximum axle loading of 7 metric tons; the minimum radius of curves (with gauge widening) on open track is 250 m. and

through turnouts is 90 m.; the maximum gradient is 8 per cent and the length of maximum gradient is 350 m.

The closing date for the receipt of tenders is 2 p.m. on February 2. Tenders should be submitted in a sealed envelope marked "Tender for Diesel Hydraulic Locomotives B.E. 2496" and addressed to the Stores Superintendent, State Railways of Thailand, Bangkok.

Application to borrow a copy of the conditions of tender and specifications, with drawings, should be made to the Export Services Branch, Lacon House, Theobalds Road, W.C.1.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at Johannesburg has notified a call for tenders issued by the Stores Department of the South African Railways for:—

Manganese steel liners in accordance with the drawings indicated below

8760	drg. CME. 66/19867-725
3750	drg. CME. 66/19868-725
2550	drg. CME. 66/19869-725
1300	drg. CME. 66/19870-725
660	drg. CME. 66/19871-725
850	drg. CME. 66/19873-725
450	drg. CME. 66/19874-725
1500	drg. CME. 66/19876-725
160	drg. CME. 66/19877-725

Tenderers are to state the analysis of the plates to be supplied and are to guarantee that all plates supplied will be strictly in accordance with the drawings. The drawings referred to above may be obtained from the office of the Chief Stores Superintendent, Room 209, Park Chambers, Rissik Street, Johannesburg, on payment of 2s. 6d. per print, or may be inspected at the office of the High Commissioner for the Union of South Africa, Trafalgar Square, London, W.C.2. The closing date for receipt of tenders is 9 a.m. on February 4. Tenders should be enclosed in sealed envelopes endorsed "Tender No. B.7222: Manganese Steel Liners," and addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg.

Tenderers offering goods for import are required to quote both for delivery F.O.B. and for delivery free on rail, in bond and are also required to state what proportion of the goods (if any) could be supplied against their own import quotas. One copy of the tender documents, without drawings, may be had on loan on application to the Export Services Branch, Lacon House, Theobalds Road, W.C.1.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at Karachi has notified a call for tenders issued by the Ministry of Communications (Railway Division), Government of Pakistan, for the supply of three 150 b.h.p., 5 ft. 6 in. gauge, flame- and spark-proof, diesel locomotives of the 0-4-0 type, with a weight in working order of 28 tons and with a top speed of approximately 10 m.p.h. Spares recommended by the manufacturer to cover two years' maintenance and tracings of the mechanical parts are also required.

The closing date for the receipt of tenders is noon on February 23. The tenders must be enclosed in a sealed envelope endorsed "Tender for Broad Gauge Flame and Spark-Proof Diesel Shunting Locomotives," and submitted through local agents to the Office of the Director-General

(Railways), Railway Division, Ministry of Communications, Room No. 302, 2nd Floor, Multi-storeyed Building, adjacent to Assembly Building, Kingsway, Karachi. Tender covers must be endorsed as stated, or the tender is liable to be ignored.

Tenders will be accepted only on the official tender form. Tender documents including instructions to tenderers, tender form, schedule of requirements, specification of the locomotives and conditions of contract may be obtained from Room 342, Office of the Director General, Kingsway, Karachi, upon payment of Rs. 25/- per set, which amount will not be refunded.

Tenders will be considered only from diesel engine manufacturers who have previously built flame- and spark-proof diesel engines with the power and size required, which have been in service in ordnance factories in various parts of the world and proved successful.

A copy of the tender notice, form, and specification may be had on loan from the Branch, Lacon House, Theobalds Road, London, W.C.1.

The Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at Dublin has notified a call for tenders issued by Bord na Mona, Dublin, for the supply of the following:—

Lot 1: approximately 42,000 yd. of rail track—3 ft. gauge, 35 lb. per yd. rails, 30 ft. long on 6 ft. long, 18 lb. per yd. steel sleepers, and accessories. This lot comprises 8,400 rails, 55,600 sleepers, 17,600 fishplates, 224,600 clips, 224,600 clip bolts and 35,300 fish bolts

Lot 2: approximately (A) 36,000 yd. of rail track—3 ft. gauge, 35 lb. per yd. rails, 30 ft. long on 6 ft. long, 18 lb. per yd. steel sleepers, and accessories; (B) 16,750 yd. of rail track—3 ft. gauge, 30 lb. per yd. rails, 30 ft. long on 6 ft. long, 18 lb. per yd. steel sleepers, and accessories. This lot comprises: (A) 7,200 rails, 47,200 sleepers, 15,000 fish plates, 190,000 clips, 190,000 clip bolts and 30,000 fish bolts; (B) 3,350 rails, 20,100 sleepers, 7,100 fish plates, 81,100 clips, 81,100 clip bolts and 14,000 fish bolts

Lot 3: approximately 10,000 yd. of rail track—3 ft. gauge, 35 lb. per yd. rails, 30 ft. long on 6 ft. long, 18 lb. per yd. steel sleepers, and accessories. This lot comprises 2,000 rails, 14,000 sleepers, 4,200 fishplates, 56,000 clips, 56,000 clip bolts and 8,400 fish bolts

The rails, sleepers and fish plates should be in accordance with the relevant British Standard Specifications.

The closing date for receipt of tenders is 11 a.m. on February 13. Tenders should be enclosed in sealed envelopes endorsed "Tender for Railway Material" and addressed to the Secretary, Bord na Mona, 28/31, Upper Pembroke Street, Dublin, Ireland.

One copy of the tender specifications and conditions of tender may be had on loan on application to the Export Services Branch, Lacon House, Theobalds Road, London, W.C.1.

TENDERS FOR TRANSPORT UNITS.—The British Transport Commission and the Road Haulage Disposal Board have nearly completed their decisions to accept or reject the tenders for transport units which were to have been received by December 21. The units totalled 217, and all consisted of vehicles only, without premises. Effective tenders were received for 215 units, and decisions had been made in 201 cases—in 136 cases to accept the highest tender and to reject all tenders in 65 cases.

Notes and News

Running Shed Foremen Required.—Applications are invited for the posts of running shed foremen required by the Nigerian Government Railway for one tour of 12 to 24 months in the first instance. See Official Notices on page 111.

Vacancy for Senior Draughtsman.—A North Midlands rolling stock manufacturer requires a senior draughtsman with experience of the transmission and ancillary equipment associated with diesel railcars. See Official Notices on page 111.

Vacancies in the Railway Department, Nigeria.—Applications are invited for the posts of resident engineer (capital works), assistant engineers, and assistant engineers (capital works), required by the railway department, Nigeria. See Official Notices on page 111.

Locomotive Maintenance Inspectors Required.—Applications are invited for the post of locomotive maintenance inspector required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 111.

Institution of Locomotive Engineers.—On Wednesday, February 10, a paper will be delivered by Mr. H. I. Andrews before the Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1, at 5.30 p.m. entitled "The measurement of train resistance."

Institute of Transport: Annual Dinner.—Sir Thomas White, High Commissioner for Australia, has signified his intention of being present at the annual dinner of the Institute of Transport, to be held on Friday, February 26, at Grosvenor House, Park Lane, London, W.1, at 6.45 for 7.30 p.m.

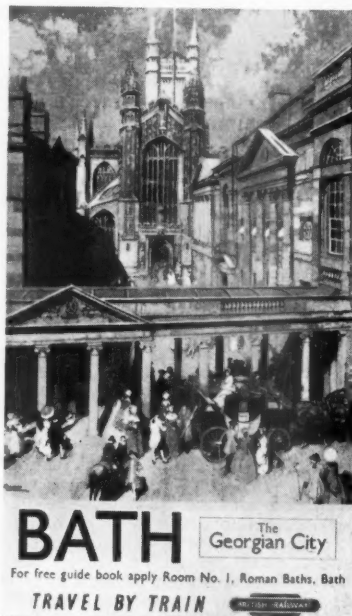
British Railways Carry More Coal.—British Railways carried 3,254,570 tons of deep-mine and open-cast coal last week, 165,000 tons more than in the preceding week. The weekend tonnage cleared in the 48 hr. ended 6 a.m. on January 18 was 392,780. During the week ended January 9, 202,021 tons of iron and steel from the principal steelworks and 294,000 tons of iron ore were conveyed.

Last London Wartime Austerity Buses Withdrawn.—The last three of 800 wartime austerity double-deck buses have been withdrawn from service by London Transport, and except for about 290 prewar vehicles all the London Transport 7,000 double-deck fleet is now of the post-war "RT" type. The last of the 290 prewar buses should be replaced during the coming summer.

Diesel-Electric Locomotives for Industrial Shunting.—The Yorkshire Engine Co. Ltd. in 1951 built two four-wheel diesel-electric locomotives in collaboration with the British Thomson-Houston Co. Ltd. These locomotives have been used extensively in a large steelworks in this country and, as a result of their satisfactory performance, the company are producing two standard types of diesel-electric shunting locomotive for heavy industrial requirements. The locomotives will be of the 0-4-0 and 0-6-0 design. The four-wheel type will have a rating of 275 h.p. and the six-wheel design a rating of 400 h.p. Both designs will be fitted with Davey Paxman diesel engines of the R.P.H. range while the British Thomson-

Houston Co. Ltd. will supply the power requirements, which will consist of the engine generator set, traction motors, and the necessary control gear. The company has recently completed one of each type of locomotive, the first of which, the 0-6-0 engine, is undergoing tests at the makers' works.

Poster of Bath.—The accompanying reproduction is of a new colour poster of Bath, brought out by the Western



Region of British Railways. The artist, Gordon Nicoll, has depicted a street scene in Georgian days; in the background is the Abbey.

Northern Aluminium Co. Ltd.: Leeds Office.—The Northern Aluminium Co. Ltd. announces that the telephone number of the Leeds Area sales office is now Leeds 33621.

Head Wrightson Dividend Maintained.—A 5 per cent interim dividend is declared by Head Wrightson and Co. Ltd., on account of the year ending January 31, 1954. This is the same as for the preceding year, when there was a final dividend of 12½ per cent to make 17½ per cent for a period of nine months.

Welding Design Course in Glasgow.—Quasi-Arc design courses on welded structures held regularly in London and Bilston over the last few years have recently proved very popular in the provinces. The course is being taken to Glasgow where it will commence on February 23 at the Institute of Engineers & Shipbuilders in Scotland. Further details can be obtained on application to the Constructional Design Department, the Quasi-Arc Co. Ltd., Bilston, Staffs.

Institution of Civil Engineers: Railway Paper No. 52.—On Tuesday, February 23, at 5.30 p.m., a paper will be delivered before the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, entitled "Railway civil engineering practice in the United States," by Messrs. N. J. Nicholls and I. M. Campbell. The authors have recently spent a year in the United

States of America and this paper is based on their experience. The organisation of the Association of American Railroads and the American Railway Engineering Association are described in the papers.

Chamberlain Industries Limited: Agreement with Walter P. Hill, Inc.—Chamberlain Industries Limited, manufacturers of Staffa products, announce that they have made an agreement with Walter P. Hill, Inc., of Detroit, principally for the production and testing of engineering parts made from tube and plate. The agreement covers the manufacture by Chamberlain Industries Limited of Hill products and their sale outside the U.S.A. Development work on prototypes has been proceeding at Staffa works for several months. The first machine to be marketed under this agreement will be a new type of production bender for small tubes and other sections.

Westinghouse Brake and Signal Co. Ltd.—In the year ended September 26 last, the group profits of Westinghouse Brake and Signal Co. Ltd. expanded from £1,183,732 to £1,270,132. The dividend of 16 per cent on the ordinary capital of £2,050,795 compares with 15 per cent paid on £1,122,372 previously. In his statement, Mr. A. R. S. Nutting, Chairman, says that with one exception the English subsidiaries did well, and, the parent company's order book remains at a satisfactory level, justifying the policy of controlled expansion. The Chairman refers to the burden of excessive taxation and calls misleading the British practice of declaring dividends as percentages of the issued capital. The current year should prove satisfactory in every way, provided there is no dislocation of or interference with productive efforts and no increase in cost to curtail purchases of the group's products or adversely affect existing contracts.

Conversion Tables for Tourists.—Tables for conversion of British weights and measures to the metric system and British currency to that of various overseas countries, have long been in existence. It was now, however, until Sir Alexander H. Maxwell, K.C.M.G., Chairman of the British Travel & Holidays Association, conceived the idea of collating conversion data of this nature into three tables, the whole borne on an adjustable card on the slide-rule basis, such tables were not available in an easily portable and understandable form to the overseas visitor to Britain. The card, which is attractively produced in several colours, carries reproductions of all our coins with the exception of the farthing. Direct-view conversion is available for all British coins to the standard currency of the U.S.A. and 12 European countries. Obviously, the card will prove equally useful to British tourists abroad as to overseas visitors to this country. Supplies of these cards are obtainable from the British Travel & Holidays Association's Tourist Information Centre, 64-65, St. James's Street, London, S.W.1, at the following rates: single cards, one shilling; batches of one dozen, 8s. 6d.

Rubber-Tyre Trains for Paris Métro.—The Paris transport authority is to approve orders for the equipment of one of its Métro lines with rubber-tyred rolling stock of a lightweight design. M. Chastellain, the Minister of Transport, inspected on January 14 the prototype carriage which has been under test for nearly two years on the shuttle service between Pré St. Gervais and Porte des Lilas (this vehicle was described in our December 21, 1951, issue). After covering over 35,000 miles, the wear

OFFICIAL NOTICES

HER MAJESTY'S COLONIAL SERVICE

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

GLOUCESTER RAILWAY CARRIAGE & WAGON CO. LTD., Gloucester, require experienced Draughtsmen. Five-day week. Staff pension scheme. Apply, stating age, details of experience and salary required, to CHIEF DESIGNER.

A.E.C. LTD. require Designers and Draughtsmen for development of Diesel Trains. Premises at Boreham Wood, Herts. Work is in connection with a new project on behalf of British United Traction Co. Ltd. Automobile and railway experience would be an advantage. Permanent employment and pension scheme. Applications in writing to STAFF RECORDS OFFICE, A.E.C. Ltd., Windmill Lane, Southall, Middlesex, stating age, experience and salary required.

LONDON FIRM requires Technical Assistant for general duties including outdoor work. Should have mechanical engineering qualifications and preferably railway experience. Age 30 to 40. Apply Box 72, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

GUAQUI LA PAZ RAILWAY.—Assistant accountant. Qualifications: Man who has passed intermediate examination of recognised accountancy body preferred. Knowledge of railway accounts an advantage. Preferably single between 28/35 years of age. **CENTRAL RAILWAY**.—Traffic Learner for training as an official. Single. Between 21 and 25 years of age. Good general education with transportation experience either practical or theoretical. Knowledge of Spanish language preferable but not essential. Apply SECRETARY OF THE PERUVIAN CORPORATION, 144, Leadenhall Street, London, E.C.3.

LOCOMOTIVE ENGINEER (25) seeks change. Experience in design and development of German diesel and electric locomotives and in maintenance of steam locomotives. British resident. German Technical College Diploma. Box 83, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

on the tyres is reported to be negligible; and its advantages over existing equipment include silent running, improved acceleration and braking, and reduced electricity consumption. The first order will be for 46 motor and 26 trailer carriages, which are expected to go into service on the line from Châtelet to the Mairie des Lilas in about two years.

Road Haulage Association and Sale of British Road Services Assets.—At a meeting of the National Council of the Road Haulage Association on January 14, the procedure was discussed for the sale of the British Transport Commission road haulage assets after the disposal of the units specified in the first three lists. Reports were received of offers by certain interests for the purchase of large sections of the nationalised undertaking. It was the opinion of the Council that before such suggestions were entertained, everything possible should be done to see that men wishing to buy comparatively small businesses should have an opportunity of doing so. The National Council reaffirmed that it is against the policy of the Road Haulage Association to support or recommend any form of monopoly, whether State or privately-owned. A resolution on these lines has been sent to the Minister of Transport and the Disposal Board.

Great Western of Brazil Railway: Third Distribution.—The liquidators of the Great Western of Brazil Railway Co. Ltd. state that because of the fall in the rate of exchange the sterling equivalent of outstanding claims has declined. This, with the reduction in expenses effected, has enabled them to apply to the High Court for permission to make a third distribution to the preferred and ordinary stockholders of 3s. per £10 unit. Payment will

VACANCIES exist in the Railway Department, Nigeria, for: (a) Resident Engineer (Capital Works). Appointment on contract/gratuity terms with fixed consolidated emoluments of £1,785 per annum, plus gratuity on satisfactory completion of contract. Duties would include supervision of Railway Capital Works; responsibilities of the post equivalent to those of Assistant Chief Engineer (b) Assistant Engineers and Assistant Engineers (Capital Works). Appointment on probation for permanent and pensionable establishment, or on contract/gratuity terms. Gross emoluments in the incremental range £830-£1,560 p.a. on permanent appointment and £1,020-£1,898 p.a. on contract. Starting salary determined by age, experience and war service. Duties would include taking charge of engineering sections and work on bridges, general reinforced concrete construction, etc. Officers appointed on contract/gratuity terms also receive substantial gratuity on satisfactory completion of contract. Candidates must hold a recognised university degree or diploma in civil engineering carrying exemption from Final Parts I and II of the A.M.I.C.E. examinations plus two years' approved practical experience or be A.M.I.C.E. For post (a) candidates must have had considerable experience in railway engineering. For post (b) experience in railway engineering would be an advantage, but is not essential. Full details on application. Apply in writing to the DIRECTOR OF RECRUITMENT, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention the reference number CDE 110/14/06 and state the post applied for.

THE HIGH COMMISSIONER FOR INDIA invites tenders for the supply of Wheels and Axles for Carriages and Wagons (Narrow Gauge) Wheels, solid rolled or forged 1 ft. 11 in. diam. on tread complete with axle with 6 in. x 3 in. journals; quantity, 100. (Metre Gauge) Wheels and Axles for W.D. Wagons, solid rolled steel wheels, 2 ft. 6 in. diam. on tread with 8 in. x 4½ in. journals; quantity, 100. Wheels and Axles for Bogie Wagons, rolled steel wheel centres, 2 ft. 4½ in. diam. on tread with 7 in. x 3½ in. journals; quantity, 24. Forms of tender may be obtained from the DIRECTOR GENERAL, India Store Department, 32/44 Edgware Road, London, W.2, on or after 22nd January, 1954, at a fee of 10s. which is not returnable. Cheques to be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, February 19, 1954. Please quote reference No. 321/53.

be made on January 29. The liquidators do not anticipate being in a position to make any further distribution until final liquidation of the company is made possible by the elimination of all claims. The amount which will then be available will be very small and less than the present one. Including the 3s. now announced, the total capital repayment will be £9 3s. per £10 unit of preferred and ordinary stock.

Fork-Lift Truck Hire Service.—George Cohen Sons & Co. Ltd., which operates the largest contractors' plant hire fleet in the country, has now begun a hire service for fork-lift trucks of the Stacatruc type. These diesel-driven machines have a lifting capacity of two tons and can lift up to a height of 12 ft.

Central Wagon Co. Ltd..—The group profit for the year ended September 30 last of the Central Wagon Co. Ltd. was £82,509, compared with £123,185 in 1951-52. The board recommends a dividend for the year of 10 per cent, less tax, on the £750,000 one-class capital, compared with a final dividend for the previous year of 15 per cent, less tax, on the £500,000 issued capital of the former holding company of the Group.

Pantomime Specials in North Eastern Region.—To enable those in outlying districts and villages to see one of the pantomimes in Leeds, the North Eastern Region will run two special excursions on March 2. One will be from Kirbymoorside and the other from Scarborough, both calling at selected wayside stations, many of which, normally closed for passenger traffic, will be opened specially for the occasion. The Scarborough train will call at Seamer, Weaverthorpe, Rillington, Malton, Strensall, Haxby, arriving at Leeds

NORTH Midlands Rolling Stock Manufacturer requires a Senior Draughtsman with experience of the transmission and ancillary equipment associated with diesel railcars. The successful applicant will be in charge of the design of the installation of the power equipment on various types of railcars. A staff pension scheme is provided and good prospects are offered to a man with initiative and experience. Applicants to send full particulars of past experience to Box 81, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RUNNING SHED FOREMEN required by the NIGERIAN GOVERNMENT RAILWAY for one tour of 12/24 months in the first instance. Salary, etc. according to qualifications in the scale (a) £750 rising to £1,035 a year, with prospect of pensionable employment or (b) £807 rising to £1,115 a year on temporary terms with gratuity of up to £150 a year. Outfit allowance £60. Free passages for the officer and his wife. Assistance towards the cost of children's passages or grant of up to £150 annually for their maintenance in United Kingdom. Liberal leave on full salary. Candidates should have served an apprenticeship in a main locomotive workshop and have had at least seven years' subsequent experience in a running shed. They must be thoroughly acquainted with all branches of running shed fitting and with periodical examinations of locomotives. Write to the CROWN AGENTS, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30208/RA.

LOCOMOTIVE MAINTENANCE INSPECTORS required by the NIGERIA GOVERNMENT RAILWAY for one tour of 18/24 months in the first instance. Salary etc. according to experience in scale £1,307 rising to £1,453 a year with gratuity of £150 a year. Outfit allowance £60. Free passages for officers and wives and assistance towards cost of children's passages or grant of up to £150 annually for maintenance in U.K. Liberal leave on full salary. Candidates must have served five-year railway apprenticeship followed by at least ten years' running shed experience and must have reached Cl. II Shed Master or Cl. II Mech. Foreman. Write to the CROWN AGENTS, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30225/RA.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

at 1.15 p.m., with time for shopping before the evening performance; the fare range will be from 4s. to 8s. The Kirbymoorside special will call at Nawton, Helmsley, Gilling, Coxwold and York, arriving Leeds at 9.58 a.m. This train will be for matinee patrons. Fares will range from 7s. 9d. to 10s. 6d.

Railway Operating Division Annual Reunion Dinner.—It is proposed that the annual reunion dinner of the officers of the Railway Operating Division shall be held on Wednesday, March 3, at the Transportation Club, 44, Wilton Crescent, London, S.W.1.

McNamara & Company.—The liquidator of McNamara & Company Ltd. announces that after further negotiations with the British Transport Commission an agreement in principle has been reached which, if approved by stockholders, would avoid the main burden of balancing charges falling upon the company. The formal agreement is in course of preparation and will be submitted to a meeting of stockholders at an early date. If the agreement is approved the liquidator hopes to make a further distribution of 4s. per stock unit soon afterwards. The final distribution, he adds, may be much delayed and will not exceed a few pence a unit. Liquidation payments to date amount to 30s. a unit.

Northern Island Wage Claims.—Six thousand railwaymen are concerned in a claim for increased wages in Northern Ireland which was put before the G.N.R. Board and the U.T.A. during the last fortnight. The unions, representing the 3,900 Conciliation Grade employees, are claiming a flat rate increase of £1 per week for their members; the T.S.S.A. is claiming a 15 per cent increase for the 780 members of the

salaried staffs of both undertakings. Negotiations will be conducted directly between the companies and the unions, and failing a settlement the claims can be brought before the Railway Arbitration Tribunal. No claims have yet been made on behalf of G.N.R. employees in the Republic or on behalf of C.I.E. staff.

Forthcoming Meetings

- January 23 (Sat.).—Locomotive & Carriage Institution of Great Britain and Eire, in the Staff Dining Club, Liverpool Street Station, British Railways, Eastern Region, at 6.30 p.m. Annual dinner and social evening.
- January 23 (Sat.).—Institute of Transport, Irish Section, at the United Service Club, Dublin, at 7.30 for 8 p.m. Annual dinner and visit of Mr. A. B. B. Valentine, Past President.
- January 26 (Tue.).—Railway Students' Association. Afternoon visit to Kings Cross Goods Depot.
- January 26 (Tue.).—Institute of Transport, Birmingham Graduate & Student Society, at the Chamber of Commerce, Birmingham, at 6.45 p.m. Paper on "Some aspects of the Transport Act, 1953," by Mr. E. W. Grimm.
- January 26 (Tue.).—Institute of Transport, Leeds Graduate & Student Society, at the Offices of Leeds City Transport, at 7 p.m. Discussion: "Staff problems with particular reference to the passenger transport industry."
- January 27 (Wed.).—Permanent Way Institution, Newcastle Section, in the Lecture Hall, District Engineer's Office, Forth Banks, Newcastle-upon-Tyne, at 6.30 p.m. Paper on "Steel sleepers," by Mr. J. C. Hudson.
- January 28 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Railway rates and charges as affected by the Transport Act, 1953," by Mr. H. D. Poole, Assistant to Commercial Superintendent.
- January 29 (Fri.).—Officers of the Royal Engineers Army Emergency Reserve (Transportation) Annual Dinner. Criterion Restaurant, Lower Regent Street, London, W.1, at 7 for 7.30 p.m.
- January 30 (Sat.).—Permanent Way Institution, at the Headquarters of the British Transport Commission, 222, Marylebone Road, London, N.W.1, at 5.45 for 6.15 p.m. Conversation.
- February 2 (Tue.).—Institute of Transport, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m. Informal luncheon.
- February 2 (Tue.).—Permanent Way Institution, Leeds & Bradford Section, at the British Railways Social & Recreational Club, Ellis Court, Leeds City North Station, at 7 p.m. Paper on "Train and traffic control," by Mr. S. Wilkinson, Instructor on Railway Courses at Huddersfield.
- February 2 (Tue.).—Stephenson Locomotive Society, Midland Area, at 71, Edmund Street, Birmingham, at 7.15 p.m. Annual meeting followed by presentation of colour transparencies "Off the beaten track," by Mr. J. M. Jarvis.
- February 3 (Wed.).—British Railways, Western Region, London Lecture & Debating Society, at the London

- School of Economics & Political Science, Houghton Street, London, W.C.1, at 6.15 p.m. Debate with the Railway Students' Association on the motion "That this house considers that there are many features associated with the conduct of private enterprise which could with advantage be adopted by the nationalised railways."
- February 3 (Wed.).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, W.C.1, at 6.15 p.m. Debate as detailed up with the British Railway Western Region London Lecture & Debating Society.
- February 3 (Wed.).—Institution of Mechanical Engineers, at Storey's Gate, St. James's Park, London, S.W.1, at 6.15 for 6.45 p.m. Internal combustion engine group discussion on "The extent to which the gas turbine may supplant or supplement the piston engine in the next ten or twenty years."
- February 3 (Wed.).—British Railways,

- Southern Region Lecture & Debating Society, at the Chapter House, St. Thomas' Street, London Bridge, S.E.1, at 5.45 for 6 p.m. Illustrated paper on "A journey through the Port of London," by Mr. E. Y. Malone, Port of London Authority.
- February 4 (Thu.).—Institute of Welding, North London Branch, at Manson House, Portland Place, W.1, at 7 for 7.30 p.m. Paper on "Avoiding fatigue in welded structures," by Mr. R. Weck.
- February 4 (Thu.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. Five films.
- February 5 (Fri.).—Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Annual general meeting.
- February 6 (Sat.).—Stephenson Locomotive Society, Sheffield District, at the Y.M.C.A., Fargate, Sheffield, at 6.30 p.m. Paper on "Some Midland Rebuilding," by Mr. J. E. Lockington.

Railway Stock Market

Business in stock markets has been on a large scale with recorded dealings their highest since May, 1951, and optimism generally has continued to increase. Sentiment was affected only to a moderate extent by the strike action taken by the Electrical Trades Union and the higher wage demands being made in other industries. Nevertheless it seems that many industrial shares have now reached levels which are high enough for the time being, at least until it is possible to assess the export trade outlook more clearly. Many shares are already at levels which allow for the hopes of higher dividends. At the present time sentiment in the City appears to be dominated by the assumption that tax reductions are in prospect, which would open the way for further dividend increases. Nevertheless, granted that income tax were reduced again and profits tax lowered, higher dividend hopes would depend on earning capacity. Even with tax reductions many companies could hardly be expected to pay more, if owing to increased competition in export markets and rising costs, earnings were to decline sharply from the 1953 levels.

With yields on industrial shares still narrowing, it would not be surprising if investors tend to look for capital appreciation prospects in other sections of markets, including foreign rails, which for the time being are receiving only very moderate attention.

There has been a revival of speculative activity in White Pass no par value shares, which have moved up from \$27 to \$29 at the time of writing, and the convertible debentures from £97 to £104. Canadian Pacific at \$42, were slightly higher on balance, but the 4 per cent preference were fractionally lower at £68½, though the 4 per cent debentures strengthened from £87½ to £88, the yield of 4½ per cent on the latter being regarded as attractive for a high-grade security such as this.

Antofagasta ordinary stock eased from 9½ to 9¼, and the preference lost 1½ points at 44. Business at 47½ was recorded in the 4 per cent debentures and at 73½ in the 5 per cent (Bolivia) debentures.

Dorada ordinary stock was less active around 60½.

Business at 6½ was recorded in Brazil Railway bonds, and at 28½ in Chilean Northern first debentures. Nitrate Rails shares eased further from 20s. 6d. to 19s. 9d.

There was little business in Manila Railway issues, which continued to ease as a result, both the "A" and "B" debentures losing a point at 75 and 65 respectively, while the preference were 7s. 9d., against 8s. a week ago, though the 1s. ordinary shares kept at 4s.

United of Havana income stock at 42 was the same as a week ago, as was the consolidated stock at 6½.

In Indian stocks, Barsi were dealt in at 125. Elsewhere, Midland of Western Australia have been less active, and transferred around 23. Guayaquil & Quito 5 per cent first bonds marked around 43½.

Road transport shares showed rather less business, but maintained firmness, with Southdown at 29s. 3d., West Riding 27s., and Lancashire Transport 48s. 6d. B.E.T. deferred 5s. units reacted a little to 39s. 6d.

Engineering shares recorded small mixed movements, with Vickers steadier at 48s. 3d. Guest Keen again changing hands around 52s. and Ruston & Hornsby better at 41s. T. W. Ward, however, eased to 82s. 6d. and Metal Industries to 40s. 9d. Tube investments firmed up to 64s. 3d. and John Brown have shown greater steadiness at 33s. 6d.

The market is expecting a small premium on Lancashire Steel preference shares when dealings start, but assumes that there is likely to be a small discount on the ordinary shares. Meanwhile United Steel ordinary shares are at a discount of 1s. They will become fully paid on January 28 when the final call of 10s. per share is due. It is believed in the City that the shares are likely to go to a small premium in due course. Recently there has been a good deal of selling by those who do not wish to pay the final call. The next steel issue, it is being assumed, will be Stewarts and Lloyds, particulars of which are looked for early next month.

Among shares of locomotive builders and engineers, Beyer Peacock firmed up from 29s. 6d. to 30s., Hurst Nelson kept at 42s., but Birmingham Carriage receded from 30s. 10½d. to 30s., North British Locomotive held their rise to 14s. 6d. Charles Roberts 5s. shares came back from 19s. 9d. to 19s. 1½d. Vulcan Foundry were 21s. 9d., against 22s. 3d. a week ago. Gloucester Wagon 10s. shares remained at 15s. 6d. and Wagon Repairs 5s. shares were 15s. 1½d. Elsewhere, Westinghouse Brake remained under the influence of the results, changing hands up to 64s. 3d.